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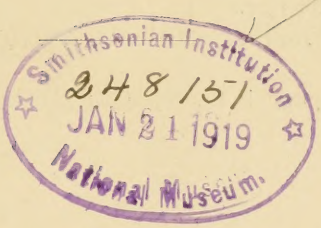
# OCCASIONAL PAPERS

OF THE

# BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

## VOLUME VI




HONOLULU, H. I.
BISHOP MUSEUM PRESS
1914-1918.

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OCCASIONAL PAPERS

OF THE

BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI—NO. 1

# Director's Report for 1913

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HONOLULU, H. I.
BISHOP MUSEUM PRESS
1914

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OCCASIONAL PAPERS

OF THE

# BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI—NO. 1

# Director's Report for 1913

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1914

# Report of Work in 1913.

[Presented to the Trustees February 17, 1914; returned to the Director April 24, 1914, with orders to omit everything but "work accomplished".]

The past year has but a commonplace history to relate. Not much has been done in publication, not much in accumulation of specimens; but the members of the staff have been far from idle.

The Museum Press has been largely occupied in printing the Report of the Director's Journey around the World, which for various reasons has taken more time than was spent in the journey. No Memoir has been issued, but of the Occasional Papers, besides the Annual Report for 1912, Volume V, Part 4, we have published Mr. Forbes' Notes on the Flora of Kahoolawe and Molokini, and An Enumeration of Niihau Plants, forming Part 3 of the same volume. Much other material has been collected for various papers not necessary to specify, and it has been no light work but is still far from accomplishment.

In the Library much work has been done and the list of accessions given below will show the value of its increase, while the following brief statistics will mark the form:

| | |
|---|---|
| Volumes received by exchange | 196 |
| Parts and pamphlets received by exchange | 615 |
| Volumes received by purchase or gift | 388 |
| Parts and pamphlets received by purchase or gift | 381 |
| Total | 1580 |
| Maps and charts | 15 |
| Manuscripts | 9 |
| Concilium Bibliographicum cards | 8826 |
| Names added to the exchange list | 12 |
| Volumes bound | 232 |

This does not show the entire activity of the Library. Many translations have been made by the Librarian and by A. DeWitt Alexander, the Director's assistant, and the same indefatigable laborers have indexed many volumes with reference cards. Visi-

tors to the Library have had volumes placed at their disposal for research, transcription, or illustration copying. Tracings of portions of maps or charts have been made for curators in a very convenient and time-saving way.

In the Botanical department much work has been done and I quote from Mr. C. N. Forbes' report to me:

"Dr. Wm. T. Brigham, Director of the Bishop Museum.

"Dear Sir:—The bulk of the material received during the year has been poisoned, mounted, classified, and incorporated into the herbarium. Work has been continued in poisoning the mounted portion of the herbarium with corrosive sublimate. This work takes a great deal of time, with little to show for it; but it seems absolutely necessary not to neglect any possible means of combatting the invasions of our numerous insect pests. The Hawaiian section is practically finished.

"Most of the collecting this year was on the smaller islands, or over ground covered before; so the number of specimens obtained was not large, although nearly the same amount of time was spent in the field. During a portion of February and March I accompanied other members of the Museum staff on a trip to the islands of Molokini and Kahoolawe. Very few specimens were collected, but the trip was instructive in many ways. The botanical results have already been reported on in Volume V, Number 3, of the Occasional Papers of this Museum. For courtesies extended while on the island we are indebted to Mr. Eben P. Low, lessee of Kahoolawe; and also to Messrs. Arthur Waal and W. A. Gill of Lahaina for aid in obtaining a boat for the trip.

"On the return from this trip a week was spent at Lahaina, Maui, for the purpose of collecting on ridges not visited in 1911.

"During the months of June and July an extended trip was made to the island of Lanai which was covered pretty thoroughly, practically every ridge and subridge being walked over at least once. There are two rather extensive forest areas on this island with a diversified and interesting flora. A fairly complete set of

the plants reported from here was collected, which has been considerably augmented by a set collected by Mr. G. C. Munro, who obtained a few not in fruit or flower during my visit. Before this year there was little or nothing from this island in our herbarium. For courtesies extended we are indebted to Messrs. Cecil Brown, George C. Munro, Charles Gay and William Dickson.

"During a month's vacation in September a few notes were made on the vegetation of Kauai. A few short trips have been made on Oahu at various times, mainly to study the ecology.

"The following list shows the number of specimens added to the herbarium during the year. All contributors should be thanked for their generous interest in this department.

| | |
|---|---|
| Miss Agnes Alexander, Maui | 2 |
| Mr. A. DeWitt Alexander, Kauai | 2 |
| Dr. C. M. Cooke, Palmyra Island | 6 |
| Hon. A. F. Judd, Hawaii | 4 |
| Rev. J. M. Lydgate, Kauai | 16 |
| Mr. J. F. G. Stokes, Kahoolawe | 5 |
| Miss H. J. Stokes, Oahu | 6 |
| Mr. G. P. Wilder, exotics | 31 |
| ———, Maui, Oahu, Kahoolawe | 49 |
| United States Experiment Station, through Messrs. Wilder and Holt, root of Ipomoea, Kahoolawe | 1 |
| Mr. G. C. Munroe, Lanai | 270 |
| Mr. A. D. E. Elmer, Philippine Islands (purchase) | 832 |
| Curator's collections: | |
| Kahoolawe | 17 |
| Molokini | 13 |
| Maui | 13 |
| Oahu | 28 |
| Lanai | 246 |
| Kauai | 8 |
| All islands (duplicates) | 1200 |
| Total additions to herbarium | 2749 |

From the Curator of Pulmonata I quote as follows:

"The last year has been an extremely interesting and valuable one. Probably more specimens have been added to the collection than in any other year, but fewer specimens have been catalogued owing to the time spent in studying and in the field.

"Twelve thousand six hundred and seven shells were catalogued, the same being distributed over 1300 catalogue numbers. The bulk of the material catalogued has been of fresh material. Several lots of fossil earth are in the laboratory, but your Curator has not had time to pick out and sort the material. The number of shells contained in these lots cannot be less than 100,000. It is only at odd times that these fossil lots can be tended to, as the strain on the eyes is too severe to be continued several days in succession. It is hoped that some progress can be made with the fossil material during the coming year.

"Among our visitors Dr. H. A. Pillsbry of Philadelphia, for whose trip the Trustees generously provided the funds, was naturally the most interesting. Dr. Pilsbry brought out his manuscript of the volume of the Manual of Conchology now appearing, and your Curator worked over this with him, supplying data, etc., on the distribution, variation, and synonymy of the species dealt with in this volume. Dr. Pilsbry has very generously made your Curator co-author of this volume. Several trips were taken by Dr. Pilsbry and the Curator to study problems of distribution and variation in the field so that the Doctor would have a first hand knowledge of the problem. These trips were taken on Oahu, Molokai, Kahoolawe, and Hawaii.

"The trips on Oahu were undertaken to study the distribution of some of the well-known Oahuan species and were planned to settle some of the vexing problems of synonymy. These trips also included some of the fossil beds in order that, from their contents, a knowledge of the former (more or less ancient) character of these islands might be obtained.

"The same problems were undertaken on the island of Molokai. The trip to Kahoolawe was in the nature of an exploring expedition. Fortunately the trip resulted in finding two fossil beds of land-shells. Messrs. Stokes and Forbes later discovered two or three very rich beds. The trip to Hawaii was primarily to study the valuable collection of Mr. Thaanum. During this trip a visit was made to the volcano.

"While in Honolulu the collection in the Museum was carefully gone over. The collections of Messrs. Thurston, Wilder and J. S. Emerson were also studied. Particular attention was paid to the collection of Mr. Irwin Spalding. This collection, in the opinion of the writer, is the largest and finest of the Oahuan tree-shells ever put together.

"The most important trip of the year was to Palmyra Island. The writer was the guest of Judge Henry E. Cooper. Two or three weeks were spent in preparation for this trip as everything necessary for collecting or preserving had to be taken along. It is needless to say that the trip was a success as twenty-seven boxes and bags of specimens are the result.

"Sixteen days were spent on the island and all kinds of specimens of animal life were taken, except birds. Several hundred specimens of coral, crabs, fish, etc., are now in the Museum as a result of the trip. Dr. Clark has kindly consented to name the echinoderms collected. The rest of the specimens collected will have to be referred to specialists. Of the land-shells only three specimens were found. Two species were very common and the third extremely rare. Undoubtedly all of the species were accidentally introduced by man when the coconuts were taken there for planting. This trip occupied about six, and several weeks were spent on the writer's return in sorting and cleaning the specimens.

"The sources of the material catalogued and added to the collection during the year are as follows:

| | |
|---|---|
| Collected by the Curator | 4391 |
| Collected by C. N. Forbes | 5198 |
| Collected by Irving Spalding | 1051 |
| Collected by J. S. Emerson | 1938 |
| Collected by others | 29 |
| Total | 12,607 |

"Besides these there are numbers of specimens given or exchanged from Messrs. A. F. Judd and D. Thaanum which have not as yet been catalogued.

"One of the most remarkable finds of the year was made by Mr. Frank Greenwell, of two species of tree-shells on the slopes of Hualalai. I wish also to mention the collection made by Mr. Forbes on the island of Lanai. This collection numbered nearly 5,000 specimens, many of the minute species being new to the island."

From the Curator of Ethnology I have received a report on the year's work in his department which is exceedingly interesting, but as he intends to publish the results of his explorations later, when completed, I give but a brief extract. The list of acquisitions is to be illustrated by engravings of some of the more remarkable specimens.

Of gifts: we received from Miss Breckons a large wooden image found on Kauai, in a remarkable state of preservation. Messrs. A. F. Judd and R. A. Cooke added specimens found on Molokai. Other gifts were received from the Dominion Museum, Wellington, N. Z.; Rev. W. D. Westervelt, Mr. Patrick Walsh, Executors of the late A. S. Cleghorn and Mr. C. F. Maxwell.

Of purchases: the feather cloak and cape belonging to the Joy family in Boston (figured in Memoirs I, Plate XII) were secured. A valuable collection of war implements from Niuë was purchased from Mr. C. F. Maxwell, formerly British Commissioner from that island; these are figured later in the lists. A Korean who has brought us several small collections from Mokapu during recent years, brought us yet another.

Of loans: the number has most satisfactorily increased. Mr. G. P. Cooke has sent us 16 specimens from Molokai, Mr. Wm. Wagner 6 from Hawaii, Mr. D. Thaanum 11 from various parts of the group, Mr. W. D. McBride 2 stone club heads, Mr. Harry Gregson a stone pikoi of unusual form, and Mr. G. O. Cooper a stick idol from Hawaii. These will be illustrated in the general list of acquisitions. The collection of Edgar Henriques has been catalogued under the Curator's supervision and 251 of the specimens are already arranged in a separate case in the upper gallery of Hawaiian Hall. Some interesting illustrations of these will be found in the lists below.

In field work two expeditions were made to Kahoolawe and en route Molokini was thoroughly explored. On the former island twelve days were spent in company with Mr. Forbes the first time and the island was explored as thoroughly as possible from the land side, and many remains of a former population were found. "While waiting at Lahaina for the steamer to return us to Honolulu, Mr. Forbes and I went to Honokahau and Kahakuloa and examined and photographed three groups of historic stones."

"Preparations were made immediately on my return to Honolulu for a second expedition to Kahoolawe, and I left on the Kilauea for Lahaina in company with Mr. Perry of the Museum and Mr. Henry Jaeger, who kindly volunteered his services. We had the misfortune to lose our equipment through a fire in the hold of the Mikahala, but it was replaced as far as possible by purchases in Lahaina. Mr. Perry and I spent twenty-three days at Kahoolawe, but Mr. Jaeger had to return to Honolulu after a fortnight; he rendered most valuable aid."

The results of these expeditions were very satisfactory and will be published after another trip to the island. The most illuminating information of the ancient fish-hook manufactures, and indeed of the former life of the Hawaiian fisherman was obtained. The excavations were conducted with the care used in excavating Pompeii: everything was passed over a quarter-inch sieve. The exhaustion of provisions and the appointed arrival of the launch to take the explorers back to Lahaina compelled them to leave much undone, although they brought many sacks of material to be picked over on their return.

It was a grand opportunity to study ancient life in a place entirely out of the way of travel, and "among two thousand odd fish-hooks and files and two or three thousand other specimens there were but six objects of foreign introduction, viz.: one iron boat spike, iron nail hook, copper nail, two fragments of cloth and a piece of canvas, all found near the surface." The early voyagers tell of the great eagerness of Hawaiians to secure iron nails, which probably quickly replaced bone as a material for fish-

hooks, and took away the bone hook makers's occupation. The abandonment of the workshop (discovered in a cave) could not have been much later than the end of the eighteenth century, or the foreign objects would certainly have been more numerous. The accumulation shows that work must have been going on at the place for several centuries before."

ATTENDANCE OF VISITORS.

Of the distinguished visitors to the Museum should be mentioned Dr. Peter Jessen, Librarian of the Kunstgewerbe Museum, Berlin; Dr. Stewart Culin and Lockwood De Forest of Brooklyn; Hofrat Professor Dr. Gustav Hanausek of Graz; Dr. H. A. Pilsbry of the Philadelphia Academy of Science; Dr. Fred. Baker of San Diego, and Dr. Hubert L. Clark of Cambridge, Massachusetts.

The attendance of visitors has this year exceeded all previous records and was only twenty less than fifteen thousand. The kapu upon children under five years of age has considerably reduced the number of Japanese visitors.

**TABLE OF ATTENDANCE.**

| 1913. | Whites. | Hawaiians. | Portuguese. | Chinese. | Japanese. | Others. | Days open. | Average. | Totals. |
|---|---|---|---|---|---|---|---|---|---|
| January | 876 | 151 | 97 | 112 | 216 | 22 | 23 | 64.1 | 1,474 |
| February | 852 | 181 | 87 | 327 | 179 | 9 | 20 | 81.8 | 1,635 |
| March | 862 | 85 | 63 | 133 | 170 | 1 | 22 | 59.8 | 1,314 |
| April | 584 | 80 | 60 | 131 | 167 | 32 | 21 | 50.2 | 1,054 |
| May | 594 | 186 | 82 | 179 | 219 | 23 | 22 | 58.4 | 1,283 |
| June | 601 | 274 | 59 | 224 | 339 | 12 | 22 | 68.6 | 1,509 |
| July | 684 | 65 | 39 | 67 | 160 | 4 | 21 | 48.1 | 1,019 |
| August | 598 | 82 | 73 | 140 | 209 | 13 | 22 | 50.1 | 1,115 |
| September | 592 | 224 | 69 | 218 | 323 | 12 | 22 | 65.4 | 1,438 |
| October | 420 | 78 | 35 | 131 | 286 | 32 | 22 | 44.7 | 982 |
| November | 430 | 85 | 43 | 82 | 215 | 11 | 20 | 43.1 | 866 |
| December | 565 | 166 | 54 | 89 | 400 | 17 | 21 | 61.5 | 1,291 |
| Totals | 7,658 | 1,657 | 761 | 1,833 | 2,883 | 188 | 258 | 58.2 | 14,980 |

## STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDING OCTOBER 12, 1913.

| | | |
|---|---|---|
| To Interest | | $19,268.75 |
| Rents | | 16,392.55 |
| Taxes | | 1,858.45 |
| Dividends | | 3,900.00 |
| Publication sales | | 340.68 |
| | | $41,760.43 |

| | | |
|---|---|---|
| By Trustees' office expenses: commissions, legal expenses, taxes, insurance, and upkeep | | $ 7,409.05 |
| MUSEUM EXPENDITURES: | | |
| Salaries and wages | | 16,347.50 |
| Library— | | |
| Books | $1230.51 | |
| Binding | 22.00 | |
| Supplies, etc. | 134.65 | 1,387.16 |
| Alexander's History* | | 1,000.00 |
| Publications | | 421.79 |
| Ethnology— | | |
| Purchase and mounting of specimens | | 2,580.43 |
| Zoology— | | |
| Dr. H. A. Pilsbry's expenses | $376.00 | |
| General expenses | 67.42 | 443.42 |
| Botany— | | |
| General expenses | | 116.50 |
| Geology— | | |
| Subscription to Volcano Research Association | $500.00 | |
| Lantern slides (volcanoes) | 63.21 | 563.21 |
| Expeditions | | 614.56 |
| Modeling | | 33.45 |
| Current expenses | | 583.33 |
| Apparatus and furniture | | 475.43 |
| Alterations and additions to buildings | | 128.34 |
| Repairs | | 1,353.17 |
| W. T. Brigham, balance on traveling expenses | | 264.30 |
| Balance to reserve account | | 8,038.79 |
| | | $41,760.43 |

*To the late Dr. W. D. Alexander on account of Hawaiian History.

# List of Accessions.

## ETHNOLOGICAL.

### BY GIFT.

Miss Breckons, Honolulu. (11,096)
Large wooden idol. Hawaiian Islands.

Estate of A. S. Cleghorn, Honolulu. (11,132–11,135)
Two grindstones, stone anchor, mortar or awa bowl. Hawaiian Islands.

R. A. Cooke, Honolulu. (11,181, 11,182)
Poi-pounder, ulumaika. Hawaiian Ids.

Dominion Museum, Wellington, N. Z. (11,089–11,093, 11,289)
Food-basket of bark, casts of 2 stone idols, cast of carved bowl, colored cast of window frame. New Zealand.
Cast of bone tapa-mallet. Niuë.

A. F. Judd, Honolulu. (11,118–11,127)
Bone implement, 9 shell beads, limestone implement, shell for squid-hook, 4 stones for squid-hooks, stone hammer, konane stone. Hawaiian Ids.

C. H. Maxwell, Honolulu. (11,288)
Hematite implement. Hawaiian Ids.

Patrick Walsh, Honolulu. (11,131)
Phallic stone. Hawaiian Ids.

Rev. W. D. Westervelt, Honolulu. (11,128–11,130)
Cast of engraved tablet. Easter Id.
Two skulls. Hawaiian Ids.

### BY COLLECTION.

Dr. C. Montague Cooke.
(11,087, 11,088, 11,277–11,280, 11,283–11,286)
Adze, 4 ulumaika, hammer, drill bit, slingstone or sinker, sinker, shell for squid-hook. Molokai.

C. N. Forbes. (11,194–11,275)

Pearl-shell used for fish-hooks, 7 adzes, 2 grindstones, 2 polishing stones, 7 knives or files, 7 files, 5 knives unground, 16 coral chips, 45 ulumaika, 2 ulumaika or hammers, shell for squid-hook. Lanai.

Stokes and Forbes. (Uncatalogued.)

About 150 specimens. Kahoolawe.

Stokes, Perry and Jaeger. (Uncatalogued.)

About 2000 specimens. Kahoolawe.

**BY PURCHASE.**

Feather cloak, feather cape. Hawaiian Ids. (11,094, 11,095)

Polishing stone, knife or file, gouge, 9 adzes, 5 slingstones, stone sinker, poi-pounder, 5 ulumaika. Oahu. (11,097–11,117)

Seven paddle clubs, 1 sword club, 4 spears, 9 javelins (Figs. 1 and 2), 3 fighting stones, hair belt, jade adze, 2 basalt adzes (Fig. 3), 2 combs (Fig. 4), 5 shell necklaces, 5 fly whisks, 3 fans (Fig. 4), 3 fringed skirts, 2 wreaths, 9 canoe models. Niuë. (11,136–11,188)

Spatula. New Guinea. (11,189)

Flax dress. New Zealand. (11,190)

Adze. Hawaii. (11,193)

**BY LOAN.**

G. P. Cook, Molokai. (L599–613)

Adze, stone disk, hammer, 2 squid-hook sinkers, 5 ulumaika, bait cup, adze, 2 squid-hook sinkers, fishing-stone. Molokai.

George O. Cooper, Maui. (L887)

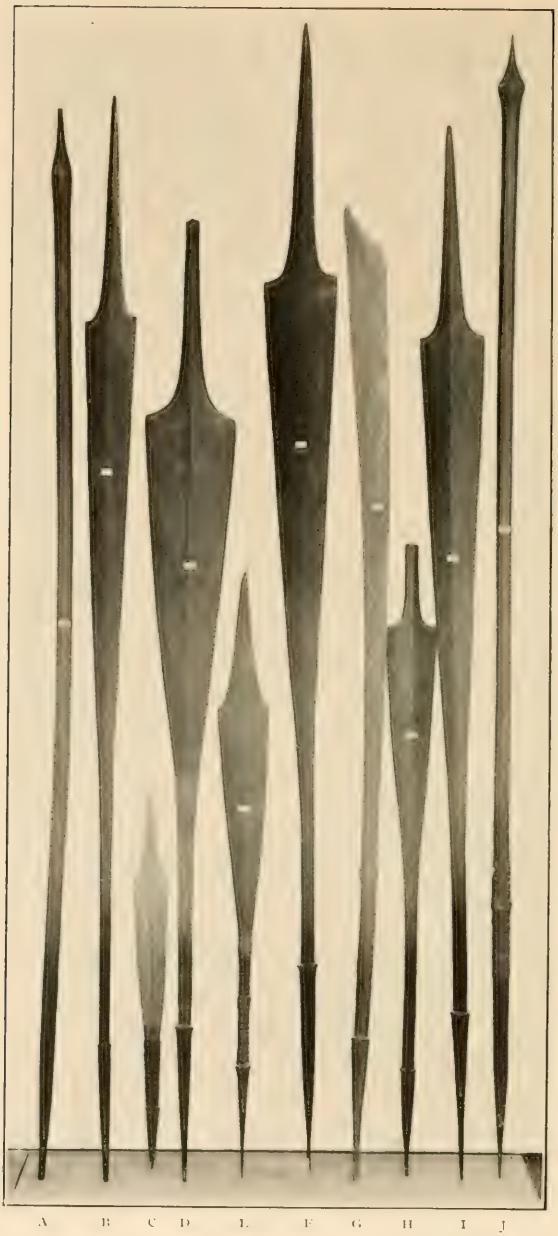
Wooden idol (Figs. 5 and 6). Hawaii.

Harry Gregson, Honolulu. (L634)

Stone throwing-club (Fig. 7). Hawaii.

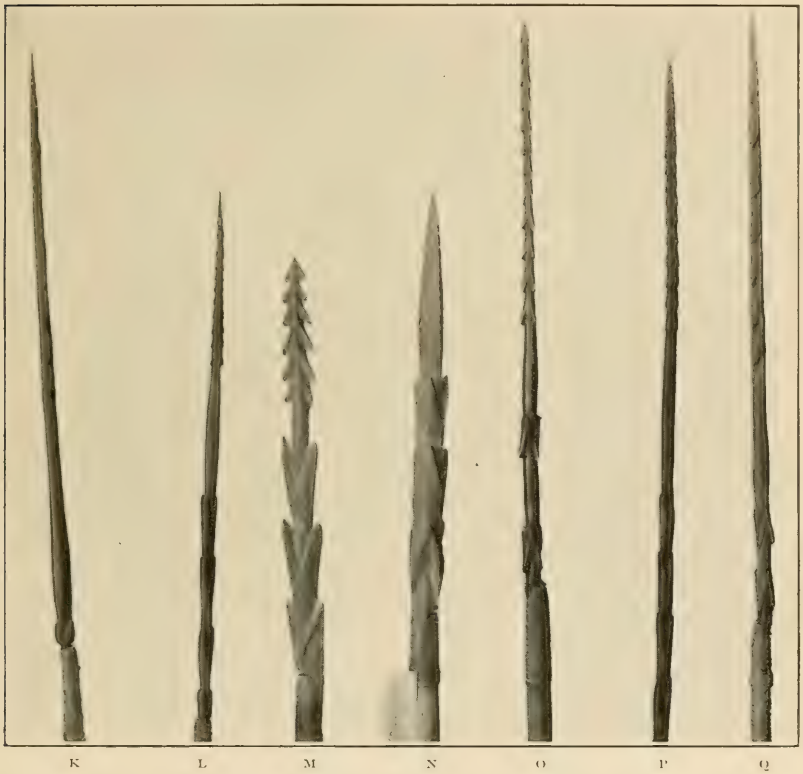
Edgar Henriques, Honolulu. (L635–886)

Twelve ulumaika, 2 coral plummets, 6 slingstones, phallic stone, 2 stone mirrors, 5 poi-pounders (conical form), 1 poi-



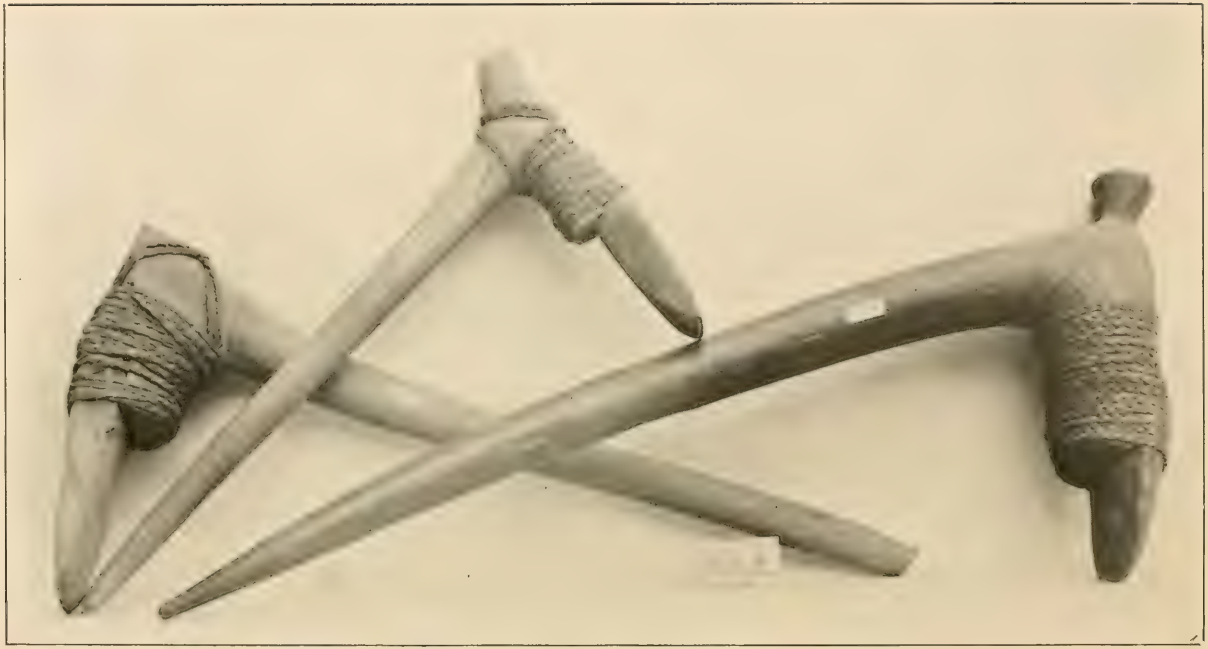

1. NIUE CLUBS AND FIGHTING STAVES.

pounder (ring form), 1 breadfruit-pounder, 5 pestles, 7 adzes, chisel, 3 polishing-stones, hammer, kapuahi kuni, 2 lamps, stone cup, 12 squid-hook sinkers, idol, 2 pieces pummice, polishing-stone made from grindstone, 20 tapa mallets (ie kuku), 2 tapa mallets (ie hohoa), 4 wooden clubs, ivory club, fishing-stick, 38




2. NIUE PIKE AND JAVELIN POINTS.

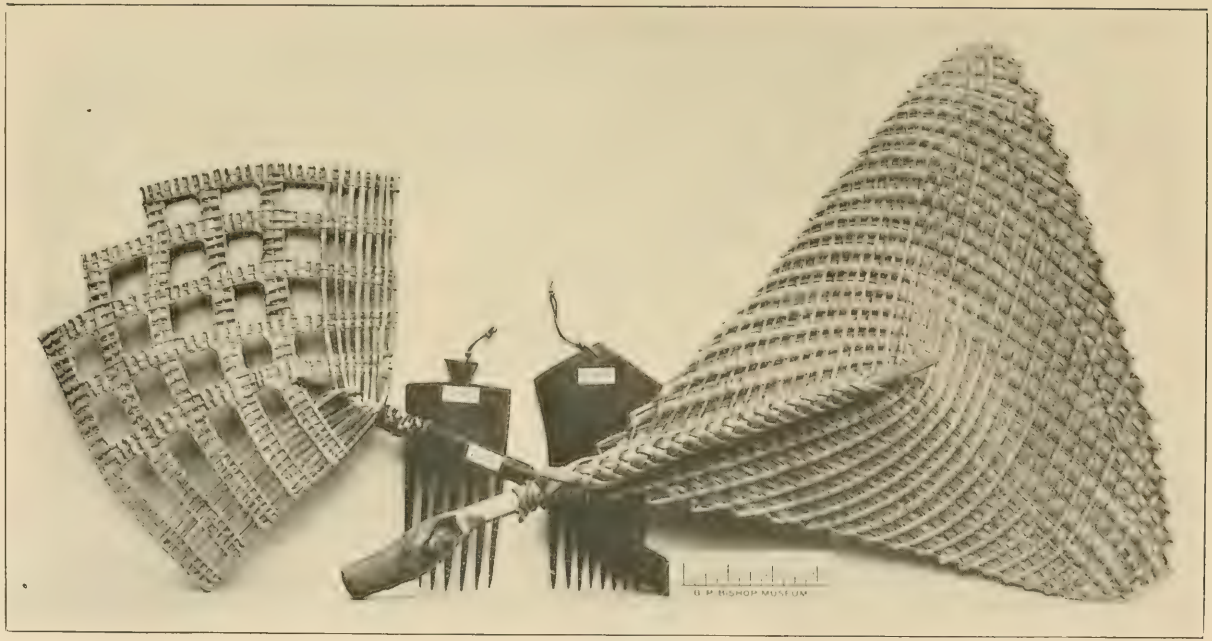
tapa-liners, 27 tapa-stamps, 2 olonà scrapers, adze of shell, eye gouge, 2 ukeke, boar-tusk bracelet, 3 fish-hook shanks, net-spacer, 6 tobacco pipes, ivory plummet, 2 massage sticks, 2 puili, 5 bead necklaces, 2 shell necklaces, 3 ivory and glass bead necklaces, 2 ivory bead necklaces, 2 lei niho palaoa, 2 niho palaoa, small tooth partly worked, 3 spittoons (Fig. 8), 3 finger bowls (Fig. 8) 3 fish plates, 2 meat plates, 18 poi bowls, double poi



Nos. 11,162 and 11,163, basalt blades.

No. 11,161, jade blade.

3. NIUE ADZES.

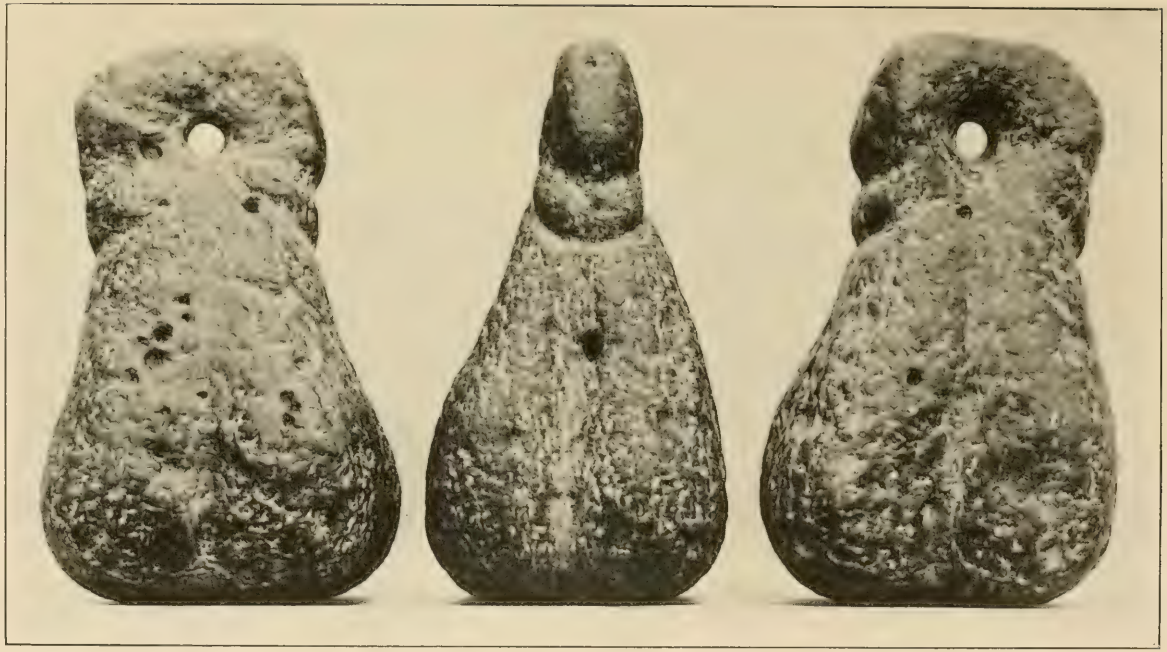



4. NIUE FANS AND COMBS.

Front.

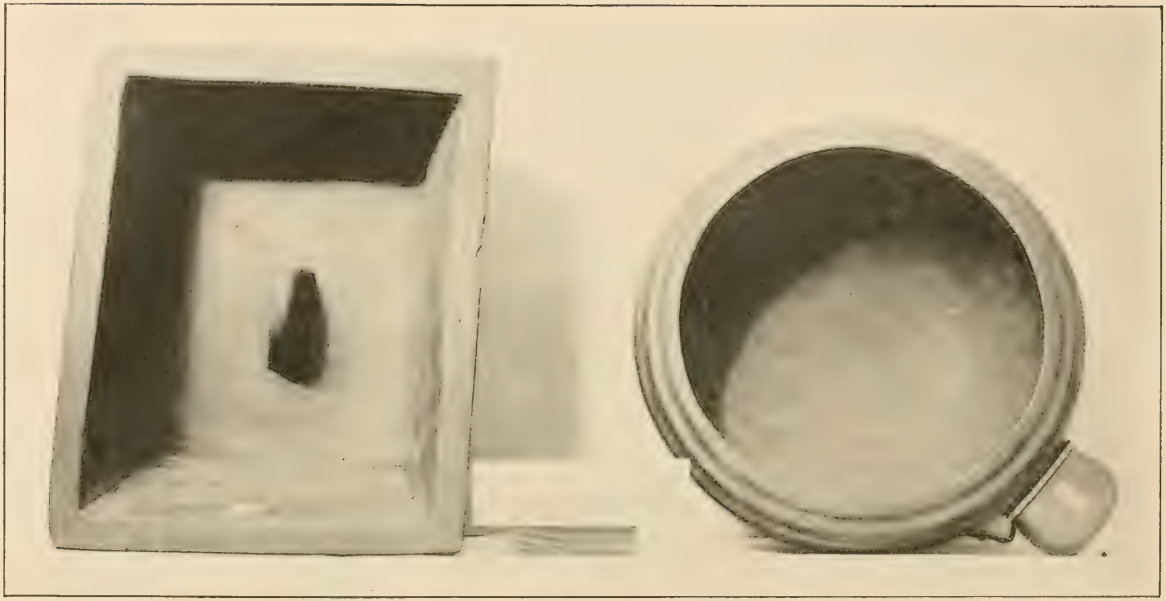
Back.

5 AND 6. HAWAIIAN IDOL. LOANED BY MR. GEO. O. COOPER.



Cast. Original. Cast.

7. HAWAIIAN SLING-CLUB OF STONE. LOANED BY MR. HARRY GREGSON.

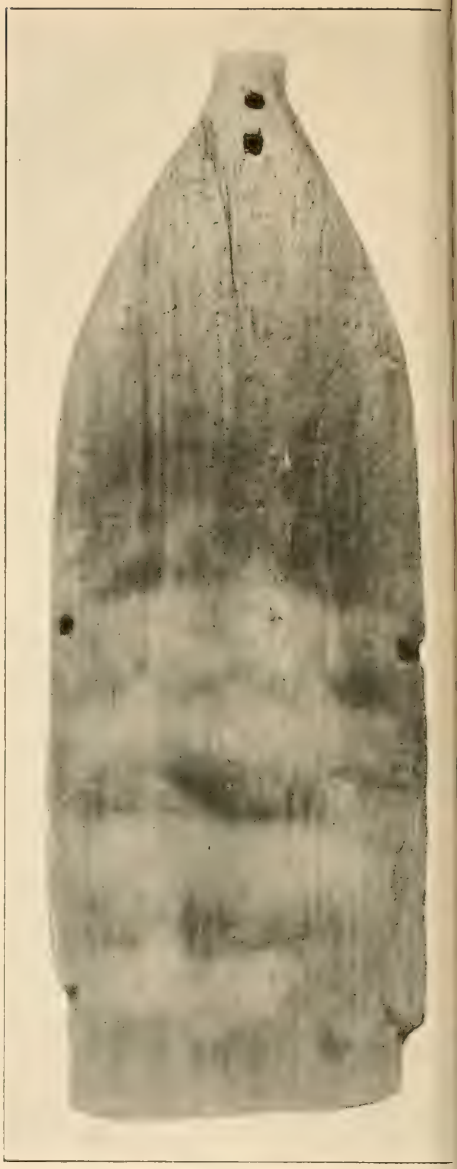


Finger bowl. Spittoon.

8. HAWAIIAN UTENSILS OF WOOD. LOANED BY MR. EDGAR HENRIQUES.

9. DOUBLE POI BOWL, HAWAIIAN. LOANED BY MR. EDGAR HENRIQUES.

Upper surface.



Lower surface.

10 AND 11. HAWAIIAN SLED OF BREADFRUIT WOOD. LOANED BY MR. EDGAR HENRIQUES

bowl (Fig. 9), sled (Figs. 10 and 11), 2 baskets, fish-line container, 4 combs, 5 ivory bracelets, kukui nut bracelet, 5 shell bracelets. Hawaiian Ids.

Walter D. McBryde, Kauai. (L631, 632)
Two stone heads of clubs. Hawaiian Ids.

D. Thaanum, Hilo. (L620–630)
Two ulumaika, 3 sinkers, 2 stone lamps, adze, 2 kapuahi kuni, dish or mortar. Hawaiian Ids.

William Wagener, Hawaii. (L614–619)
Lei niho palaoa, 2 tobacco pipes, fish-hook, poi bowl, pestle. Hawaiian Ids.

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## OTHER DEPARTMENTS.

C. N. Forbes. Collection. (11,276)
Lava mould. Lanai.

Purchase. (11,191, 11,192)
Three jars reptiles, 3 bird eggs. Niuë.

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|---|---|
| Volumes received by exchange | 196 |
| Parts and pamphlets received by exchange | 615 |
| Volumes received by purchase and gift | 388 |
| Parts and pamphlets received by purchase and gift | 381 |
| | 1580 |
| Total number of volumes received in 1913 | 584 |
| Total number of pamphlets and parts | 996 |
| | 1580 |
| Maps and charts | 15 |
| Manuscripts | 9 |
| Concilium Bibliographicum cards | 8826 |

Twelve names have been added to the list of exchanges.

# New Hawaiian Plants.—IV.

Charles N. Forbes.

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**Lysimachia koolauensis,** nom. nov.

*L. longisepala* Forbes, in Occasional Papers, B. P. B. M., IV, 222 (1909) not Forrest, in Notes Roy. Bot. Gard. Edin. XIX, 237 (1908).

On consulting the latest supplement to the Index Kewensis, which was not previously available, I find that the above change of name is necessary, as the name *longisepala* was preoccupied for a Chinese plant by Forrest. As more extensive field collecting has not extended the range of this plant beyond the Koolau range of mountains on Oahu, it seems appropriate that the plant should bear this name. A point not mentioned in the original description is that it often has a creeping rhizome.

# PUBLICATIONS

OF THE

# Bernice Pauahi Bishop Museum

## Honolulu, Hawaii, U. S. A.

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### MEMOIRS.

(Quarto.)

Vol. I. Nos. 1-5. 1899-1903.

Vol. II. Nos. 1-4. 1906-1909.

Vol. III. Ka Hana Kapa: the making of bark-cloth in Hawaii. By Wm. T. Brigham. 1911. Complete volume.

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### OCCASIONAL PAPERS.

(Octavo.)

Vol. I. Nos. 1-5. 1898-1902. No. 1 out of print.

Vol. II. Nos. 1-5. 1903-1907.

Vol. III. Nos. 1, 2. 1907..... Volume incomplete.

Vol. IV. Nos. 1-5. 1906-1911.

Vol. V. No. 1. New Hawaiian Plants, III. By Charles N. Forbes.—Preliminary Observations Concerning the Plant Invasion on Some Lava Flows of Mauna Loa, Hawaii. By Charles N. Forbes. 1912.

No. 2. Director's Report for 1911.—The New Laboratory.—Another Curved Adze. By Wm. T. Brigham. 1912.

No. 3. Notes on the Flora of Kahoolawe and Molokini. By Charles N. Forbes.—An Enumeration of Niihau Plants. By Charles N. Forbes. 1913.

No. 4. Director's Report for 1912. 1913.

No. 5. Director's Report of a Journey Around the World to Study Matters Relating to Museums. 1912. With index to volume.

Vol. VI. No. 1. Director's Report for 1913.—New Hawaiian Plants, IV. By Charles N. Forbes. 1913.

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A Handbook for the Bishop Museum. 1903.

Index to Abraham Fornander's "Polynesian Race." By John F. G. Stokes. 1909. Octavo.

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A detailed list, with prices, will be mailed to any address on application to the Librarian.

# OCCASIONAL PAPERS

OF THE

# BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI—NO. 2

# Director's Report for 1914

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1915

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OCCASIONAL PAPERS

OF THE

BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI—NO. 2

# Director's Report for 1914

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1915

REPORT PRESENTED MAY 12, 1915.

RETURNED APPROVED MAY 19, 1915.

# Director's Report for 1914

During the year 1914 the number of visitors to the Museum has been greater than ever before, and, what is more important, we have had many more students devoted to continuous work in our Library and Laboratory; some studying weeks at a time, and it is probable that all found it worth their while. Mr. Mesterhazy of Moskau made with remarkable speed and accuracy colored drawings of our fruit casts and of many of our ethnological specimens. Dr. F. von Luschan and Mrs. Emma von Luschan spent a month at the Museum busily engaged in measuring our collection of Hawaiian crania and skeletons, and also making measurements and casts from life. This study proved so interesting that these distinguished anthropologists hope to return to these islands to extend their investigations. The result obtained from the Museum collections we hope to publish, fully illustrated, in our Memoirs. The necessary apparatus for the photographic illustration of crania could not be found in the United States and has been ordered from Munich, although its arrival has been delayed by the war in Europe; from the same probable cause anthropometrical instruments ordered from Zürich are long overdue.

The number of students in the Library emphasizes the need for better library accommodations. The repairs made to the new concrete Laboratory with the addition of a thick coat of paint seems to have stopped the leakage all over the building, and where paint has been applied to the inner walls as well, the result is most satisfactory.

The Entomological Room has been fitted with suitable furniture and racks for steel cases. In the Publication Room the additional cases authorized will have been installed before this report is issued. For Dr. Cooke's room fine new cases have been made in the Museum for the storage of shells. In the Casting Room suitable means have been provided for the speedy drying of moulds and casts.

In Hawaiian Hall the relics of the chiefs have been removed to the upper gallery, and the botanical collections for exhibition will be placed in the same gallery as soon as the bird skins now there can be transferred to the steel cases now *en route* from New York. After this the gallery will be open to the public. In it have been placed temporarily the Connelly collection of Australian specimens, and the Etheridge collection of specimens mainly from the New Hebrides. Here also are the loan collections of Hawaiian origin.

The new edition of the portion of the Museum handbook relating to Hawaiian Hall is nearly complete and will probably be issued by the time the upper gallery is open to visitors. A separate catalogue of the fish casts is in preparation to be issued as soon as the new species have been determined by the distinguished authority to whom they have been referred. This will be a notable publication, as our collection of casts and notes on the fish from which these have been made embraces essentially all the important food fish of the group. It is also proposed to have a separate section of the handbook for the volcanic specimens, and for the Polynesian and Melanesian collections when the hall for the latter is built. This much to explain the form of publication: the former handbook covered the entire collection.

Our publications have been limited to the Director's Report for 1913 in the Occasional Papers. No Memoirs have been issued, but much work has been done on certain papers for future publication. Our exchange list has increased during the year as will

be seen by the list at the end of this report. The demand from abroad for the Memoirs on Feather Work, Kapa Making, Index to the Islands of the Pacific, and especially Mr. Stokes' Index to Fornander's Polynesian Race continues to a gratifying extent. Great delay in our publications has been caused by the impossibility of getting satisfactory paper here or at the Coast, compelling us to send to the factories in the East.

In the Cast Room there has been great activity, and a numl er of new and very interesting specimens have been cast. In the family of eels thirty-one specimens are already on exhibition and eight more are cast and nearly finished. A very large specimen of "John Dory" (Zeus) has been cast, as also a fine fish he had just swallowed when caught. The expected visit of Dr. B. W. Evermann has greatly stimulated the search for new and rare specimens.

During the visit of Dr. von Luschan a number of casts were made of native faces, and hands, and the process of making masks as practised by our visitor was so satisfactory that it is to be hoped more of these expressive and interesting casts will be made. Our thanks were given to several of the Kamehameha School boys for their obliging willingness to be measured and cast. They found it not so disagreeable a process as it looks. The moulds are still awaiting an opportunity to forward them to Dr. von Luschan when *en route* for Germany.

Of the distinguished and helpful visitors may be noted Herbert Bolton, M.Sc., F.R.S.E., Director of the Museum, Bristol, Eng.; Prof. Alfred M. Tozzer and Prof. W. R. Castle, Jr., of Harvard; Prof. Hiram Bingham of Yale; Rosewell B. Lawrence, Esq., Secretary of the Appalachian Club; Dr. Geo. A. Dorsey of the Field Museum, Chicago; Prof. Felix von Luschan and Madame Emma von Luschan of Berlin; Prof. (of Geography) Aleksander Janowski, University of Warsaw; M. Mesterhazy of Moskau, Explorer in Brazil. [45]

**TABLE OF ATTENDANCE.**

| 1914 | Whites. | Hawaiians. | Portuguese. | Chinese. | Japanese. | Others. | Days open. | Average. | Totals. |
|---|---|---|---|---|---|---|---|---|---|
| January | 693 | 119 | 59 | 241 | 333 | 74 | 23 | 66.1 | 1,519 |
| February | 1278 | 418 | 204 | 257 | 392 | 88 | 21 | 125.6 | 2,637 |
| March | 858 | 194 | 71 | 110 | 166 | 28 | 22 | 64.9 | 1,427 |
| April | 653 | 158 | 67 | 161 | 244 | 42 | 21 | 63.1 | 1,325 |
| May | 478 | 96 | 72 | 98 | 533 | 44 | 21 | 63. | 1,321 |
| June | 509 | 180 | 75 | 99 | 170 | 9 | 22 | 47.4 | 1,042 |
| July | 847 | 92 | 55 | 122 | 128 | 19 | 21 | 60.2 | 1,263 |
| August | 583 | 139 | 54 | 218 | 144 | 28 | 22 | 53. | 1,166 |
| September | 610 | 178 | 46 | 109 | 146 | 43 | 21 | 54. | 1,132 |
| October | 504 | 150 | 89 | 81 | 235 | 37 | 23 | 47.7 | 1,096 |
| November | 388 | 69 | 57 | 84 | 118 | 26 | 20 | 37.2 | 742 |
| December | 452 | 212 | 25 | 91 | 118 | 5 | 21 | 43. | 903 |
| Totals | 7,853 | 2,005 | 874 | 1,671 | 2,727 | 443 | 258 | 60.4 | 15,573 |

The Curator of Botany, Mr. Charles N. Forbes, reports as follows:

"Very little field work has been done this year, and nearly the whole time has been spent in the Herbarium. The whole collection, including the duplicates, has now been poisoned with mercuric bichloride, and I am glad to report that the Herbarium is free from all insects. Much time was spent in mounting, classifying and studying the specimens; some time has been spent on a card reference index to the Hawaiian Flora; several field trips have been made on Oahu in connection with ecological studies. Owing to the difficulty of preserving specimens from insects I am not keeping a large stock of duplicates of Oahu plants, as it is better to get them on demand. This accounts for the smaller number of specimens added in comparison to other years when the collecting was on other islands.

"The following specimens have been added to the Herbarium during 1914:

| | |
|---|---|
| Miss J. E. Tilden, Pacific islands plants (by purchase) | 700 |
| Mr. G. C. Munro, Lanai | 100 |
| Mr. C. K. McClelland, U. S. Experiment Station | 12 |
| Mr. A. De Witt Alexander | 1 |
| Mrs. C. M. Cooke, Set of Baldwin's Hawaiian ferns | 49 |
| Curator's collections on Oahu | 287 |
| Total additions | 1150 |

Dr. C. M. Cooke, Jr., Curator of Pulmonata, reports as follows:

"For the year 1914 your Curator can report progress. This has been an exceedingly profitable and busy year, and more specimens have been catalogued than in any previous year.

"Sixty-eight thousand nine hundred and fifteen (68,915) specimens were catalogued, distributed over two thousand nine hundred and ninety-four (2994) catalogue numbers. There are at present in the Museum five collections (acquired either by gift or purchase) which are uncatalogued containing between fifty and seventy-five thousand shells belonging for the greater part to the genera *Achatinella* and *Amastra*.

"Two trips to Molokai and one to Kauai were taken during the year and a great deal of valuable material was collected. On both of these islands particular attention was paid to fossil beds. Eight new beds were discovered on Kauai, two of which were in districts from which no material had previously been reported. A portion of the large collections of fossils made by Mr. Stokes at Koloa, Kauai, and on Niihau were catalogued during the year. The fossils from Niihau were especially interesting and show a very close relationship to those on Kauai. The fossils collected on Kahoolawe by Dr. Pilsbry, Messrs. Stokes and Forbes and your Curator were also catalogued, and a number of new species found among them, especially in the genus *Leptachatina*. There are in the Museum at present between twenty and thirty lots of material, from as many different fossil beds, which are uncatalogued. Some

of these lots are sorted, but in a number only the larger specimens have been picked out. I estimate that at least two hundred thousand shells are contained in these lots.

"One of the most important finds of the year was made by Mr. Thaanum in the valley of Waimano, Oahu. It was a pocket of fossil earth, and the whole amount could not have been more than a bushel. Forty-two species of shells were found in this earth and there must have been originally thousands of shells contained in it. Six new species of *Endodonta* alone were found in this lot. Although some of the species are still found alive in the neighborhood of this deposit, the bulk of the species seem to be related more closely to those found at present on the Waianae Range than to those of the Koolau Mountains.

"The value of working out the species of these fossil beds cannot be overestimated. Dr. Pilsbry has shown, from his study of the *Amastra* that there is undoubtedly a possibility that at one time these islands were joined together. It is the hope of your Curator to carry on this study with the other genera of shells. The finding of these fossil beds, some of which are close to the seashore, proves that at one time the islands were wooded to the sea. Not only this, but by correlating the species of fossil shells found in these beds with the related living species and what is known of their habitats, I feel sure at some time we shall be able to know almost the exact character of the ancient forests which at one time covered these islands.

"On December 22, Mr. W. M. Giffard kindly presented to the Museum the collection of land shells made by his late brother. This collection contains the largest specimen of an Oahuan tree shell I have ever seen, and also a sinistral specimen of *Achatinella lorata* which is, as far as I know, unique.

"Those from whom gifts have been catalogued are: Mrs. H. Waterhouse; Misses H. Hatch, A. T. Cooke and C. A. Cooke; Messrs. H. A. Pilsbry, D. Thaanum, I. Spalding, J. S. Emerson,

A. F. Judd, G. P. Wilder, C. A. Rice, W. H. Rice, Jr., A. Rice, F. Greenwell, H. Hitchcock, W. A. Bryan, L. A. Thurston, R. A. Cooke, G. P. Cooke, O. Sorenson, D. Fleming, J. J. Goureia and W. G. Marshall; Masters Mott-Smith, Lindley, Paris, Weedon, Emerson, von Holt, H. and C. M. Cooke III. Over fifteen thousand of the specimens catalogued during the year were collected by Messrs. Stokes and Forbes of the Museum staff.

"Among the noteworthy specimens added to our collections this year are:

"*Succinea rubida* Pease. This species has been found only twice since the time of Pease, as far as I know, and only three or four specimens have been taken. In June thirty-one specimens were found back of Wahiawa, Kauai, and the Museum has now a fine series showing the different stages from rather young to the adult specimens. This species is quite rare in its natural habitat. The young appear, in the field, to belong to different species as the animals are light colored while those of adult specimens are of a dark slate. Many trips have been undertaken to Kauai in the hopes of finding this species and the related *Succinea explanata*. The latter, as far as I know, has not been found since it was taken by the United States Exploring Expedition.

"Two new species related to *Succinea*, but undoubtedly constituting a new genus, were found on Kauai in fossil deposits at Hanamaulu and Haena, Kauai. These are the only species of the Succineidæ which are umbilicated.

"A new species, which may belong to a genus new to these islands, was found on the coral bluffs near Koloa, Kauai. This species is related to the Opeas, an imported genus, the species of which are common in all our gardens. Evidence from the more modern of the so-called fossil beds shows that at least one of the species of Opeas was originally brought here by the early Hawaiians.

"The finding of *Leptachatina fossilis* at Mana, Kauai, is also worthy of mention. The type and what was formerly the only

specimen of this species is in the collection of the Academy of Natural Sciences of Philadelphia, and is without locality.

"On Oahu the fossil pocket found by Mr. Thaanum has been mentioned. The two most remarkable species are a large undescribed species of *Amastra* and a species of *Endodonta* of an entirely new type. The latter may be the representative of a new sub-genus.

"Also from Oahu, *Amastra antiqua* and *Amastra vetusta* were rediscovered. The original material was found by Dr. Lyons and described by Mr. Baldwin. Neither of these species was in the collection of the Museum until your Curator found them this year. Repeated search has been made to relocate the original beds, but so far unsuccessfully. The finding of both these species in new beds is interesting.

"On Molokai Mr. Hitchcock found the base of what appeared to be an entirely new species of *Amastra*. Three trips were taken in the hope of finding whole specimens, all of which were unsuccessful. In December Mr. G. P. Cooke sent to the Museum specimens which probably belong to this species, which is the largest species of land shell from any of our islands if we except Kauai; one specimen is nearly 40 mm. in length.

"The monograph on the Hawaiian Endodontidæ has received considerable attention during the year and a portion of the manuscript has been written. One hundred and four forms have been photographed by Mr. Baker, and about forty additional forms will be illustrated. More than one hundred species and varieties of this interesting family are in our collection which are distributed over several hundred catalogue numbers. Mr. Sykes, in 1901, recognized only twenty-one species, and since then about ten have been added. Only nine species of this genus were collected by Mr. Perkins. The work of finishing this monograph will take considerable time, as hardly a month passes without the finding of some new and interesting variety or species."

Mr. J. F. G. Stokes, Curator of Polynesian Ethnology, reports as follows:

"Of our accessions the finest gift of the year was that of Mrs. Agnes H. B. Judd, who gave us the collection of the late A. Francis Judd, chief justice of the supreme court, which had been here on loan deposit for fourteen years. The most valuable specimen was the feather cape which at one time belonged to Kaumualii (described in Memoir I, p. 62). Another interesting specimen was a small to medium poi bowl of the unusual tall form, which was reputed to have belonged to Kalaimamahu, brother of Kamehameha I.

"Another generous donor was the Rev. W. D. Westervelt. For a long time past no annual list has appeared without this gentleman's name appearing among the givers, in my department as well as in others of the Museum. During the year 1914 the Director recommended that appreciation of Mr. Westervelt's interest be shown by the presentation by the Trustees of the Museum publications. This was approved and a formal presentation made in person by the Director and this Curator. The result was very surprising and unlooked for, as, in order to demonstrate his continued good will towards the Museum, he stripped his house of almost all his remaining specimens and loaded up the car.

"The Museum has several good friends on the Molokai Ranch. The manager, Geo. P. Cooke, and assistant manager, James Munro, have both visited my room at the Museum and received what instruction I could give them in collecting. They have received further instruction in the field from the Curator of Pulmonata, whose investigations of the fossil beds have taken him through the regions inhabited by the old Hawaiians. These gentlemen and their friends have taken a real pleasure in gathering specimens for the Museum and have sent in large collections made independently and in company with the Curator of Pulmonata.

"Among the other gifts should be specially mentioned that of seventeen kapas from Kona, from Mrs. C. M. Cooke; piece of original hieroglyphic tablet from Easter Island, made by Mrs.

W. M. Giffard; and carved ceremonial paddle from Mangaia, made by Edward M. Brigham, Curator of the Public School Museum, Battle Creek, Michigan. Of the staff both the Curators of Pulmonata and of Botany have made contributions which will be mentioned later in describing the field work.

"Of the purchases of the year by far the largest was the collection made by the brothers R. J. and Norman Etheridge of Sydney, numbering 416 specimens. This collection has been catalogued and temporarily placed in cases in the upper gallery of Hawaiian Hall. The Director will add a few notes on the more remarkable specimens.

"A number of small purchases have been made of Hawaiian material. A very choice kapa of a pattern different to what we have in our collection, but figured on plate 37 of the Memoirs, Vol. III, was purchased from Mrs. J. H. Maby. Three hula ki'i, similar to the marionettes described by Dr. N. B. Emerson, were bought; also a lei claimed to have belonged to Kaumualii. An unusually large number of specimens of the plainer and less spectacular kind have been bought at the curiosity stores or at the door during the year, and the sellers have been encouraged to get more. By this means we have received two or three specimens absolutely new to us.

"In the class of relics the Kapiolani Estate kindly presented us with a lot of material found in the palace at Kailua, Hawaii. Included were what was described as photographs of Kamehameha IV and Queen Emma, which proved to be very choice portraits in oil by Burgess in 1856.

"This Curator has taken but three trips into the field during the year. One, in company of the Curator of Botany, was made to a cave on Oahu which was full of loose and scattered skeletons; as the owner of the land was known to be very sensitive on the subject of removing skeletons, they were examined but not disturbed.

"Professor von Luschan was conducted over the sand dunes at Waimanalo, and a few fragments of skeletons found. This locality yielding poor returns, an expedition was planned to some dunes

on Lanai known to Mr. Wagener, and carried out with the permission of the Lanai agents. We were well satisfied with the results.

"I might say here that I was in continual attendance on Professor von Luschan in the field and laboratory during the month of his visit. Coming direct from the centre of modern anthropological study, as he does, and being in fact the leader in the subject, I received great benefit from the observation of his methods and the instruction he was ready to impart. There is one matter in which Professor von Luschan has demonstrated that we have been clearly derelict in our duty. He expected to find in a museum of this size and location, three thousand well authenticated Hawaiian skulls. He found but fifty skulls all told, very few of which were Hawaiian. These we have been content to gather as occasionally met with, expecting that at some future date the feelings of the present Hawaiians in regard to the gathering of their ancestors' bones might be modified by time and education as in other countries.* The trips to Waimanalo and Lanai have furnished the Professor with an excellent subject on which to base his lectures for our benefit. The condition of the bones made it only too apparent that even in these dunes, composed of lime sand, each on the dry side of the respective islands (the most favorable locality for the preservation of bony material under ground), it would be only a very few years before the skeletons would be too decayed to be worth collecting. He says that we owe it to Science to gather as many authenticated Hawaiian skeletons as we can accommodate and store—at least five hundred—so that the record of the Hawaiian proportions will not be lost.

"Considerable time has been given to the Kahoolawe collection in seeking a satisfactory method of handling the subject, both in regard to cataloguing and description. There have been pub-

*In 1865 I was able to ship some five barrels of Hawaiian crania to Boston. Many of these were collected in the sand beyond Diamond Head; others in the sands of the isthmus of Maui. Fine specimens were in my collection and these were measured by Dr. Jeffries Wyman of Harvard University. I wish indeed I had as good a collection in this Museum.—W. T. B.

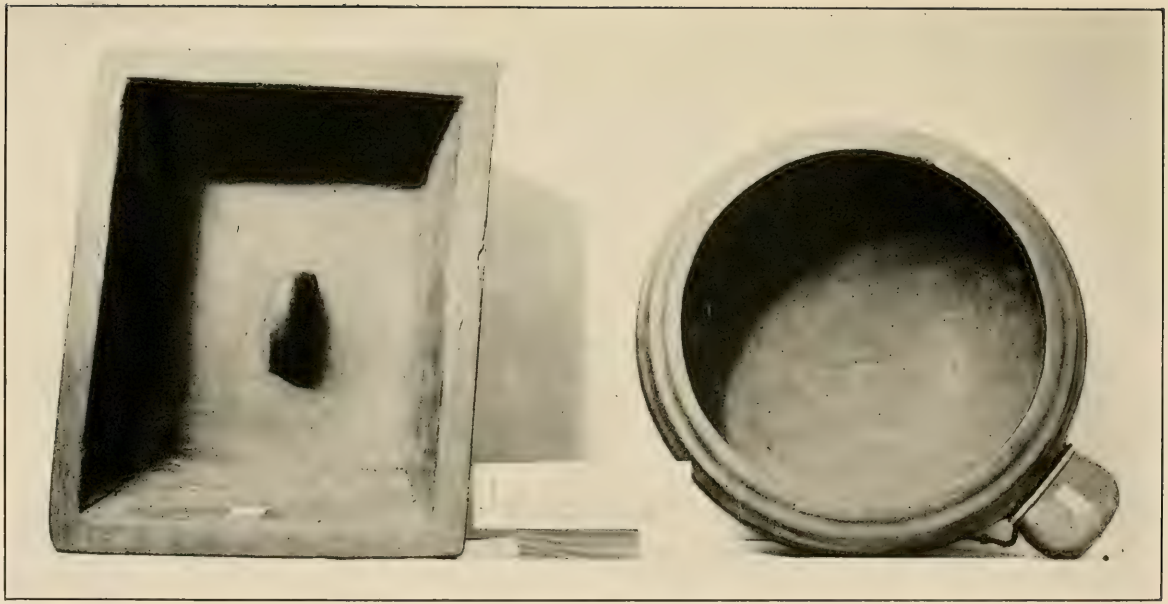
lished many articles on kitchen middens, which most nearly resemble the Kahoolawe find, but in no case is the procedure applicable. Some attention has been given to the subject of the *piikoi*, the Hawaiian throwing club, and a paper prepared. It was, however, withdrawn to await further expected information. Some notes were handed to the Director describing various specimens in the Henriques and other loan collections.*

THE HENRIQUES COLLECTION.

The collection received on loan from Mr. Henriques consisted of 250 specimens, of native origin, enumerated in the list of accessions for 1914. This was but one-third in number of his entire collection, but included all the uniques and rare specimens. When aiding Mr. Henriques to catalogue his specimens, it was noted with pleasure that the wooden utensils, poi bowls, meat dishes, finger bowls, etc., retained their original native polish. So many of the Hawaiian wooden dishes in private hands have been spoiled (for museum purposes) by modern varnish. There was a remarkably large series of bambu kapa stamps and rulers, nearly all received from one old maker of kapa. One of the stamps had the pattern cut out from tortoise shell. Among the pounders was found one made of wood of the same shape and average size as the conical poi pounders of stone: this was used for the breadfruit poi. Wooden pounders are seldom seen; they were also used for pounding seaweed. There was a basket of *ieie* root, examples of which, once common, are seldom seen now.

A finger bowl 8.8 inches long, 7 wide and 3.3 deep, and a spittoon 8 inches in diameter and 3.2 deep (Fig. 1) show variations which are worthy of special notice. The finger bowl has four straight sides, instead of the usual circular or oval form, and none of the corners are rectangular (Fig. 1, *a*). The spittoon has two well-made grooves around the outer rim (Fig. 1, *b*). Both

*These important notes came to hand too late to issue with the illustrations that had been prepared for the last annual report. They are inserted here with the proper illustration. [54]



*a* *b*

1. HAWAIIAN FINGER BOWL AND SPITTOON. HENRIQUES COLLECTION.

have been in Mrs. Henriques' family for many years, but the name of the original owner of the spittoon only has been retained: it is believed to have belonged to Kualii, king of Oahu, who died before 1730, according to Fornander (Polynesian Race, II, 280).

It should be mentioned that the nucleus of this collection consisted of specimens and family heirlooms of Mrs. Henriques and her aunt, Miss Peabody, Hawaiian ladies of high rank, who had inherited from their ancestors; and the collection has been increased many fold through the exertions of Mr. Henriques himself.

Included also is the *niho palaoa* (ivory hook, an emblem of rank) which has been handed down as the identical hook which Liloa, king of Hawaii, gave Akahiakuleana as a pledge and means of identification for their son Umi. The story has been often told (Fornander, II, 74; Malo, 338; Tales of a Venerable Savage, 18). The name of the specimen, "Nalukoki," written by the late Queen Emma on a label is still adhering. The original surface has been removed (by filing probably) from both sides of the inner portion of the hook and the hole for suspension, but the rest of the specimen retains the brilliant native polish.

There is also the following unique specimen: a double poi bowl, 22.3 inches long (Fig. 2), goblet-shaped each half, and connected by a round bar, all carved from a single piece of wood; being cut across the grain the bar had not much strength and has been broken. There is no history connected with the specimen except that it has been in the family for many years. The Director and Mr. Henriques suggest that it was a relic of the kapu period, when different sexes were prohibited from eating together; husband and wife could by this device eat out of the separate compartments and so observe the restriction. However, this explanation is not very satisfactory, as the sexes were generally prohibited from eating in the same place, and even their food was required to be cooked in separate ovens (Malo, 50). Another suggestion has been made that the double bowl was probably used for breadfruit and kalo poi.

2. HAWAIIAN DOUBLE POI BOWL. HENRIQUES COLLECTION.

A small adze of shell, length 1.8 inches, width 1, and thickness .2, with a rounded cutting edge following the contour of the shell, and made from a species of *Conus*,* is probably unique, as I cannot find that another has been reported in known collections. I have no doubt that it is of Hawaiian origin. Mr. J. S. Emerson, well posted in Hawaiian folklore, quoted to me this passage in a Hawaiian song, which seems to explain the origin of the adze:

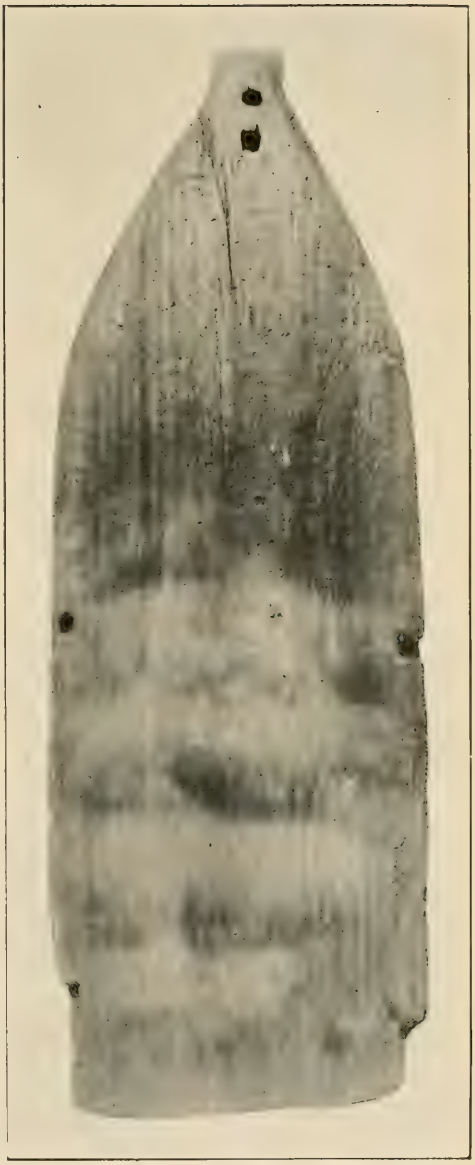
"He alahee ka koi o uka,
He olé ka koi o kai."

This Mr. Emerson translates for me as, "The alahee (tree) furnishes the material for the adze inland, the olé (shell) for the adze at the seashore."

Another specimen, a heavy wooden fork with two broad, tapering tines (length 12.9 inches, of tines 8, width at crotch 4, points 2.6 apart at centres) is believed by the owner to have been used for gouging out the eyes of the human victims offered in sacrifice. The tines are the same distance apart as the middle of the average native eyes. We have never found any reference to any instrument for this purpose, however, although the following has been recorded concerning eye gouging. Malo (Emerson trans., p. 229), describing part of the ceremony of consecrating a *luakini*, said: "on this occasion Kahoalii (title of a man representing the god) ate an eye plucked from the man whose body had been laid as an offering on the lele, together with the eyes of the pig." On the same matter Fornander wrote (Polynesian Race, I, 131): "the left eye of the victim was offered to the presiding chief, who made a semblance of eating it, but did not." Since the receipt of the Henriques fork I have learned of the existence of others of wood and hope to learn more of the subject when I can interview the owners.

Another specimen, a sled or toboggan, made of breadfruit wood, is illustrated in Fig. 3, 4. It was built like the bow of a native canoe, with the upward curve of the prow ending in the usual finish called the *ihu*. Behind the ihu is a block correspond-

*The texture, color and curvature of the adze seem identical with those of a specimen of cone which Dr. C. Montague Cooke has identified for me as *C. quercinus* Hwass.



3, 4. HAWAIIAN SLED OF BREADFRUIT WOOD. HENRIQUES COLLECTION.

ing in position with the *malu* or *umalu*, the dasher of the canoe. The dish-like body of the toboggan is nearly flat on the bottom and curves but slightly upward towards the edges where it rises more abruptly to the rim. The rim begins at the block and continues along both sides to the rear end. There is no rim across the rear end. The total length is 44.8 inches, width 15.5, length of body 34.5, height of rim from bottom 1.5, thickness of bottom 1.2 in middle and .5 at rear; block 7.2 long and 3.5 high and wide.

Through the neck, between the ihu and the umalu, two holes have been vertically cut (not drilled). At various points along the lower edge other holes have been cut obliquely (Fig. 4), one on either side near the middle, two on the left and one on the right near the end. They were skilfully made on a slant so as not to interfere with the upper surface (Fig. 3). When the specimen was found there were heavy cords of braided coconut fibre attached through the perforations. The upper surface is smooth, but the lower has been much scratched and scored, as might result from dragging a heavy load over stones or gravel. Toward the rear end this surface has been nearly worn through, the thickness having been reduced more than a half. All the cutting has been done with a blunt implement, and the specimen is undoubtedly ancient. It was found in 1905 in a cave at Hookena, Hawaii, together with a small surfboard of breadfruit wood and several stone implements. When found both toboggan and surfboard were impregnated with salt.

Following the discovery, it was recollected by the older natives at Hookena (according to a brief article in the Commercial Advertiser, Dec. 6, 1905) that their parents and grandparents had told them of a certain chiefess named Kaneamuna who lived at Hookena in the time of Keawenuiaumi, king of Hawaii. Her principal amusements were riding the surfboard and coasting down hill. It was also said that for the latter purpose she had a course built on a hill back of Hookena and a sled made. After her death her sled and surfboard disappeared, and it was common belief that those found in the cave were hers.

The only type of sled previously known to us, is that with long, slender runners. This Museum possesses one in complete condition and runners for two more. Our completed specimen, received from the former Government Museum, consists of a pair of slender runners 11.5 feet long, 2.3 inches deep and 1 wide, set on edge, and kept in place—1.5 inches apart in front and 3 in rear (2.5 and 4 to centres)—by cross braces lashed to the runners at intervals of about 11 inches. On the braces is placed a platform of wood, bambu and matting, 4 inches wide, covering the runners except three feet in front. The total height is 4.7 inches.* Another pair of runners in the Museum collection is two feet longer, but otherwise identical with those of the complete specimen. All the runners are made of a very hard, durable wood. The sliding was done on steep hillsides on a course made by clearing a track ten to twenty feet wide and covering this with dry grass. In some places the course was paved or built up with stone and covered in the same way. Remains of both kinds may still be found. The sport was exclusively for men of chiefly rank, who occasionally came to their death thereby. When sliding they lay full length on the sled and the skill required may be judged from its width.

Women did not follow this sport, although they were very expert on the surfboard. I do not know if the all-pervading kapu system was the reason, but corpulence was a point of female beauty among the old Hawaiians, which would naturally make this sled unpopular with the sex. I can find but one reference to a woman essaying the feat (Ellis, Tour Through Hawaii, London, 1827, p. 291), where Pele, the female Vulcan, appeared in human form and challenged a chief on Hawaii to a race. "Pele, less acquainted with the art of balancing herself on the narrow sledge than her rival, was beaten...." An expected result of such an unbecoming attempt on the part of a woman.

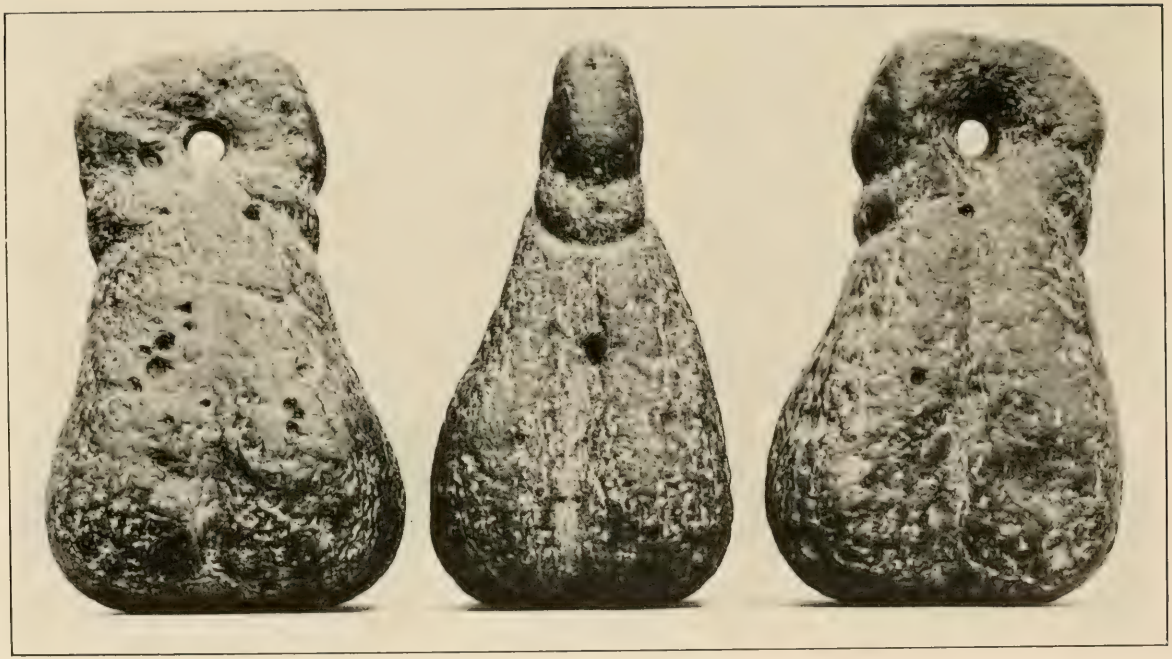
*This sled was found in a burial cave in Puna, Hawaii, by the late Rufus Lyman and by him given to King Kalakaua, from whom it came to the Government Museum. It is the most perfect specimen known.

Returning to the Henriques specimen, we get some light on the use of the toboggan from the fact that under the ancient system women of certain high rank were not permitted to walk—they were carried. It seems to me that this specimen may well have been the private car of some chiefess who preferred this mode of traveling. In support of this I would refer to the position of the side ropes placed so as not to interfere with the seating space; the number of ropes, indicating that numerous retainers were at command, and their arrangement, such that the toboggan could be perfectly controlled and so avoid an accident that might upset the august personage or cause her discomfort. Were the toboggan intended for human conveyance the position naturally taken would be a seat, cross-legged or otherwise, with the weight of the body on the rear end of the sled and the block as a brace for the feet. The excessive wear on the under surface at this place indicates such a probability. The precautions taken and the number of men required would hardly be necessary, and the wear on the under surface would have been more evenly distributed were the sled used for the transportation of freight. The fact that the toboggan was impregnated with salt, and its resemblance to the bow of a canoe savors more of the sea than the hills; the presence of salt would be accounted for if one use of the sled was to carry Kaneamuna to and from the ocean; it was stated that surf riding was one of her amusements.

The use of any sled by a woman must have been a departure from custom which was sufficiently novel to impress it on the memory of fourteen generations, but it could not have become general among women, or there would have been no comment at all. The use of a sled of this type must have been an isolated case, or infrequent, or it would hardly have escaped attention so long. I cannot but believe that the tradition refers to the Henriques specimen.

### THE GREGSON SPECIMEN.

An interesting specimen has been loaned by Mr. Harry Gregson (Fig. 5). It is of heavy, laminated basalt. The bulbous end is fairly evenly divided into four lobes by broad, shallow



5. THE GREGSON SPECIMEN.

grooves. On the bottom the middle of one groove seems to have been slightly deepened by a sharp implement in one or two spots, but as all cuts run in the same direction as the grain of the stone, they may only be the result of the peculiar chipping of the material. Otherwise the pittings clearly show that the specimen was shaped by pecking. The smaller end is flat and wide, is perforated and has two notches on each edge for cord. The process of making the hole differed somewhat from the usual drilling through from both sides. In this specimen depressions were pecked on both sides to about one-third of the depth, and the rest drilled. The depression on one side occupies nearly the whole width of the end. Drilling a hole through stone is an advance on the pecking method, and it would seem that the specimen was completed by a different worker than the one who began it. It is 6.6 inches high, 3.9 wide, 3.3 thick, and weighs 3 pounds 14 ounces.

When found by Mr. Gregson in a cave in North Kohala, Hawaii, in 1900, it was attached to an oloná cord 30 inches long and about a third of an inch thick. The cord was of four-ply twist, not braid, which after being run twice through the hole was divided into strands which passed along the grooves at the edge, level with the hole, and tightened in the channels separating the lobes. The cord was so decayed that it fell to pieces when the specimen was found, but Mr. Gregson said that the free end was finished off, not cut. The short and heavy cord and the weight of the stone suggest a form of canoe breaker, such as described by Dr. Brigham in his essay on Hawaiian Stone Implements (Memoirs I, 341). Mr. Gregson said it was an ikoi for tripping up and striking a man.

Continuing Mr. Stokes' report with the

## LIST OF ETHNOLOGICAL ACCESSIONS.

Bruce Cartwright, Jr., Honolulu. (B 382)
Section of unusual form of stone pounder. Oahu.

John F. Colburn, Honolulu. (B 144)
Fish-god. Oahu.

D. L. Conkling, Honolulu. (B 154)
Model of Hawaiian sled.

Mrs. C. M. Cooke, Honolulu. (11,716-11,832)
Seventeen sheets of kapa. Hawaii.

Dr. C. Montague Cooke, Honolulu. (B 112)
Human skull. Oahu.

Geo. P. Cooke, Molokai. (11,750-11,818)
Grindstone, lamp, tally stone, 6 stone hammers, grindstone fragment, 12 adzes, 33 ulumaika, 12 stone sinkers, slingstone, stone pestle. Molokai.

Mrs. Walter M. Giffard, Honolulu. (B 444-447)
Ringed stone lamp. Oahu.—Portion of hieroglyphic tablet. Rapanui.—Two bobbins. South America.

Mrs. Agnes H. B. Judd, Honolulu. (B 130-142)
Feather cape (described in Memoirs, I, p. 62, B. P. B. M.). Kauai.—Feather lei, 8 umeke (one of which belonged to Kalaimamahu), finger bowl, spittoon, meat dish. Hawaiian Islands.

A. F. Judd, Honolulu. (B 143)
Stone knife. Hawaiian Islands.

Mrs. Henry Waterhouse. (11,840)
Ulumaika. Hawaiian Islands.

Benjamin L. Marx, Honolulu. (11,839)
Slingstone. Oahu.

James Munro, Molokai. (11,841-11,960)
Nine stone hammers, pestle, pounder, 11 sinkers, 27 ulumaika, tally stone, kapuahi kuni anaana, 2 grindstone fragments, 17 adzes, drill point, 3 shells for squid hooks, stone hammer, skull, skeleton, 14 kapa mallets, rubber or polisher, scraper or file, 22 fish hook files, artefact of coral, 9 coral chips, 2 bone fish hook chips, Echinus species. Molokai.

Edward M. Brigham, Curator Public School Museum, Battle Creek, Mich. (B 305)
Small carved ceremonial adze. Mangaia.

Charles S. Rose, Sheriff of Honolulu. (B 205)
Human skull. Honolulu.

Rev. W. D. Westervelt, Honolulu.
(11,707-11,714, B 418-443, B 448-454)
Nine adze handles, 3 breadfruit cutters, shell adze. Marshall Islands.—Four-pronged sword, string shell and coconut money, pandanus-leaf satchel. Gilbert Islands.—Coir satchel; head, ear, neck and arm ornaments; coir sling, fish spear. Caroline Ids.—Six paddles. Micronesia.—Shell adze. Marquesas.—Fish-god

4 sinkers, muller, 2 pounders, stone lamp, stones for playing konane, 2 slingstones, medicine pounder, ulumaika, oloná board. Hawaiian Ids.

**BY COLLECTION AND GIFT.**

C. M., G. P. and R. A. Cooke. (B 254-266)
Four stone hammers, drill point, 2 adzes, 6 shells for squid hooks. Molokai.

C. M. and G. P. Cooke and James Munro. (B 267-277)
Stone hammer, iron head of whale lance, iron knife blade, 2 iron fish hooks, 5 sinkers, 4 nodules of iron ore. Molokai.

C. M. and G. P. Cooke. (B 284-285)
Adze, ulumaika. Molokai.

C. M. Cooke, C. M. Cooke III and Harrison Cooke. (B 293-304)
Sinker, 9 stone hammers, adze, ulumaika. Molokai.

C. Montague Cooke. (B 286-292)
Two stone hammers, 4 adzes, sinker. Molokai.

Cooke and Forbes. (B 246-253)
Pounder, ulumaika, hammer, piece of grindstone, stopper of wiliwili wood, large sinker or anchor. Oahu.

Forbes, Thompson and Gill. (B 155-156)
Two human skulls. Oahu.

Forbes and Stokes. (11,837-11,838)
Poi bowl, ivory bead. Oahu.

von Luschan, Stokes, Wagener, Perry and Penchula. (B 157-204)
Fifteen skeletons (more or less complete), 18 skulls, 6 mandibles, 2 squid hook shells, bone squid hook point, bone artefact, perforated boar's tusk, niho palaoa of shell. Lanai.

von Luschan and Stokes. (B 206-208)
Two skeletons (fragmentary), portions of skull. Oahu.

John F. G. Stokes. (11,819-11,820)
Stone hammer, sinker. Oahu.

**BY PURCHASE.**

Eight ulumaika, 2 polishers, 4 adzes, sinker, shell ornament, slingstone or spinning top. Oahu. (11,733-11,749)
Pillow, adze. Hawaiian Islands. (11,834-11,835)

Grindstone, adze, tongue for reversible adze, polishing stone, wooden pounder, ring poi pounder, 6 conical poi pounders, 4 pestles, 2 mortars, stone dish, pohaku eho, 7 stone lamps, olohu, 4 ulumaika, 8 sinkers, 3 slingstones, 2 oloná scrapers, 3 kapa mallets, laau melomelo, squid hook, iron fish hook (native form), stone idol, calcite ornament, sinker, wooden dagger, wooden kapa stamp, piece of kapa. Hawaiian Islands.—Wooden drum, 2 meat hangers. Fiji. (11,961-12,020)

Mystic stone. Oahu. (12,021)

Fish hook file, stone knife, 2 adzes, 2 sinkers, ulumaika, stone lamp. Oahu. (B 145-153)

Lei niho palaoa that belonged Kaumualii. Kauai. (B 220)

Three hula ki'i (man, woman and boy). Oahu. (B 221-223)

Adze, olohu, 2 pounders, 3 ulumaika. Kauai.—Pohaku ahu aina, kuula manani, kuula humuhumu, kuula nenue, pohaku aho, pohaku mou. Oahu. (B 224-236)

Pohaku hana palu na Hulaaniani. Hawaii. (B 237)

Sinker, 3 stone lamps, 3 ulumaika. Hawaiian Ids. (B 238-244)

Ulumaika, slingstone, massage stone, pounder. Hawaiian Islands. (B 383-386)

Kapa, Hawaiian. (B 387)

Broken feather lei, feather lei just begun, 3 tufts of feathers, bracelet bead. Hawaiian Ids. (B 388-393)

Two ulumaika, pounder, sinker, stone pillow, polisher, squid hook shell, mat stone. Hawaiian Ids. (B 394-401)

Wooden carved bowl, head fringe, 2 porpoise-teeth necklaces, pair of ear ornaments. Marquesas. (B 402-406)

Two poi pounders, poi board. Hawaii. (B 410-411, 407)

Ulumaika. Hawaiian. (B 409)

Two poi pounders, 2 adzes, kapa mallet, mat stone. Oahu. (B 412-417)

Melanesian and other collections of Norman and Robert J. Etheridge of Sydney, N. S. W.:— (11,290-11,716)

Four mats, cordage, 9 fish hooks, shell necklet, human hair necklet. Marshall Ids.

Girdle or money, basket, skirt. Gilbert Ids.

Two baskets. Horne Ids.

Mat. Tonga.

Three stone axes. New South Wales.

Sixteen arrows, bow, 8 bone lime spoons, paddle, 4 head fringes, comb, 4 nose ornaments, 10 necklets, 2 gorgets, 3 armlets, 15 bangles, 2 belts, head rest, shuttle, lime pot and spatula, 4 drums, 3 coconut spoons, 7 knitted bags, 9 kapas, lime gourd, basket. British New Guinea.

Ceremonial club, drum, food bowl, 2 armlets, 11 lime spatulas, 6 stone axes, stone kapa beater, 2 lime pots, 3 saw-edged clubs, 2 flat clubs. Trobriand Ids.

Arm ring, obsidian knife, lime gourd. Admiralty Ids.

Gourd musical instrument, 8 frontlets. New Britain.

Two chalk figures. New Ireland.

Shell trumpet, 3 lime boxes, 4 combs, necklace, chief's stomacher, 10 stone axes, 13 grass armlets, 5 shell armlets, ear ornament, 2 shell charms, gourd top, 2 fans, 2 combs, basket, food dish, coconut scraper, nut food, 2 tobacco pipes, fish call, 24 arrows, 2 bows, 4 spears, shield, model of warrior. Solomon Ids.

Arrows, rod, ceremonial club, breast ornament, 2 armlets, woven wrapper, 2 woven bags. Santa Cruz Ids.

Yam knife, 5 strings of money, 2 kava bowls, basket. Banks Islands.

Six clubs, 4 yam pounders, yam dish, 2 pig-killing clubs, food ladle, 4 food dishes, 5 food platters, 7 kava platters, kava bowl, 2 turtle-shell kava dishes, 6 strings native money, 4 armlets, 4 belts, 2 hair ornaments, chief's cap, 4 initiation disks, 3 yam knives, nautilus-shell drum, 4 pandean pipes, matted bag, hair pin, 6 spears, chief's staff, atua, stone axe, 3 clay pots, scraper of bird bone. Espiritu Santo, N. H.

Two arrows, 2 loin cloths. Aoba, N. H.

Four loin cloths, 3 clubs, 2 stone dolls, stone axe, native money. Pentecost Id., N. H.

Nine clubs, 4 bows, 70 arrows, ceremonial club, spear, 14 prepared heads, skull, human figure in wood, face mask, 2 coiled wooden bangles, 13 armlets, matted bag, shell adze, charm, 7 belts, 4 loin cloths. Malekula Id., N. H.

Two clubs, 2 male figures, wooden face mask, 2 masks, 2 strings of money, armlet, two skirts, sleeping mat, 3 stone axes. Ambrym Id., N. H. [68]

Four armlets, 2 adzes. Paama Id., N. H.

Club. Tongariki, N. H.

Two clubs. Eromanga Id., N. H.

Eight armlets, coiled wooden bangle, 2 charms, sling, matted bag, pandean pipe. Tanna Id., N. H.

Two charms. Aneiteum Id., N. H.

Matted bag. Valua Id., N. H.

Ceremonial head dress, 12 armlets, money, skirt, matted bag, adze, food scraper. New Hebrides.

A FEW NOTES ON SOME OF THE MORE NOTEWORTHY SPECIMENS IN THIS COLLECTION BY WM. T. BRIGHAM.

Among the drums is one much smaller than usual but of good workmanship, shown in Fig. 6, No. 11,386. The wood is a dark, rather heavy wood; the interior well bored, slightly flaring toward the base which is open. The membrane is of snake or lizard skin, well worn, attached by many folds of vegetable fibre. Wings on either side seem to have been intended for attaching feathers; each is pierced by six holes drilled from each side. The handle is carved from the same block. The upper and lower thirds of the drum still show the cuts of the tool that formed them, while the middle section is much smoother. In playing on the drum a not unpleasant sound is produced by striking with the back of the finger nails, and it is louder than would be expected from the small size of the drum.

Of the carved spatulas (Fig. 7), the wood is the same as the drum. The handle is for use evidently as well as for the display of ornament. In No. 11,398 it is formed by two human figures, one above the other in totem-pole style, the upper one being slightly smaller, but of the identical pattern. The cutting is deep under the chin separating the arms and hands, and in the same way the legs are completely separated. The heads are peculiar: the eyes circular cuts without pupils; the nose long and continuing the line of the forehead, while the mouth is almost invisible in the lower chin; both toes and fingers are wanting. The total length is 17.5 inches.

Of the same style is the larger spatula, No. 11,399, which measures 24.2 inches, but the two men forming the handle are placed back to back, and there is a side ornament on the stem

6. CARVED DRUM.

7. CARVED SPATULAS FROM THE TROBRIAND IDS.

reminding one of the closed blade of a penknife. Both this and the previous example seem too large for lime spatulas. No. 11,397, the upper middle figure has the same two men for handle, but their bodies are very attenuated; the workmanship is coarser, but the implement is better suited for a lime spatula, as it is only 8.2 inches long. No. 11,393 has a handle of very different form, simply of four wings which can easily be grasped with four fingers; its length is 11.6 inches. These seem to be

8. BELT OF BARK, NEW GUINEA.

made in the Trobriand Islands, and from there distributed largely in trade.

Papuans, like many other savages, depend largely on belts, even if only of cord, to indicate whether the abdominal region is extending beyond the fashionable bounds, and the present specimen, No. 11,356, from the Gulf region of New Guinea would seem a very sufficient compressor. It is made of bark, well incised, the pattern being emphasized by the lime background: the name is kava or kaba. The width is 5.5 inches, and the circumference of the belt when worn is 28 inches.

In the New Hebrides the yam is as much a staple food as the kalo of the Hawaiians, and much labor is expended on the apparatus for its preparation. The yam dish shown in Fig. 9 is of average size and superior workmanship. The terminal handles seem to be liked by the New Hebrideans, as many of the other dishes are so provided, as seen in Fig. 11. The pounders shown in Fig. 10 are all tapering and more or less ornamented with carving. The dish is very heavy and the wood rather hard. It is from the Kitia district of Santo, as the residents generally call Espiritu Santo (Australia del Espiritu Santo as named by Quirós). The island is 75x40 miles and rises to a height of 4000 feet. Like most of the New Hebrideans the inhabitants were cannibals, and some are still inclined that way. We have in the Museum trophies of their cannibal feasts.

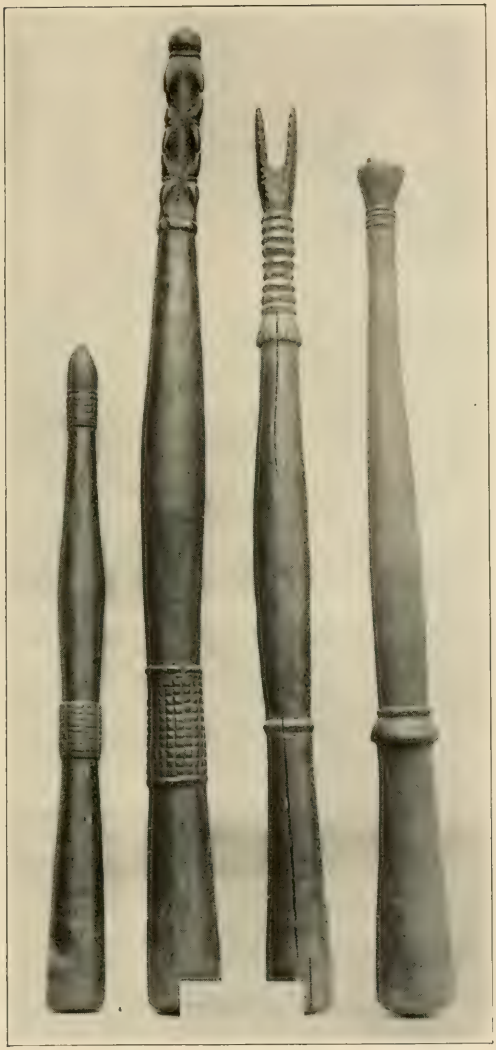
Fig. 11 shows some types of dishes of curious form, clumsy but not easily broken, more like a scoop than a dish; the last in the row with a channel at the end as if for pouring gravy. The numbers are in order, 11,518, 11,519, 11,520. The length of the longest is 21.5 inches.

A very interesting set of platters is shown in Fig. 12. These come to us labelled kava dishes and the patina on the wood sustains the name, but their form is flat so that they could hardly be called saucers. Some, as 11,533 and 11,530, have a handle at opposite sides; one, 11,528, has a double handle at one end, and the rest, 11,527, 11,532, 11,531 and 11,529, have to be content with one only. The size of these plates can be seen by the scale at the base of the group.

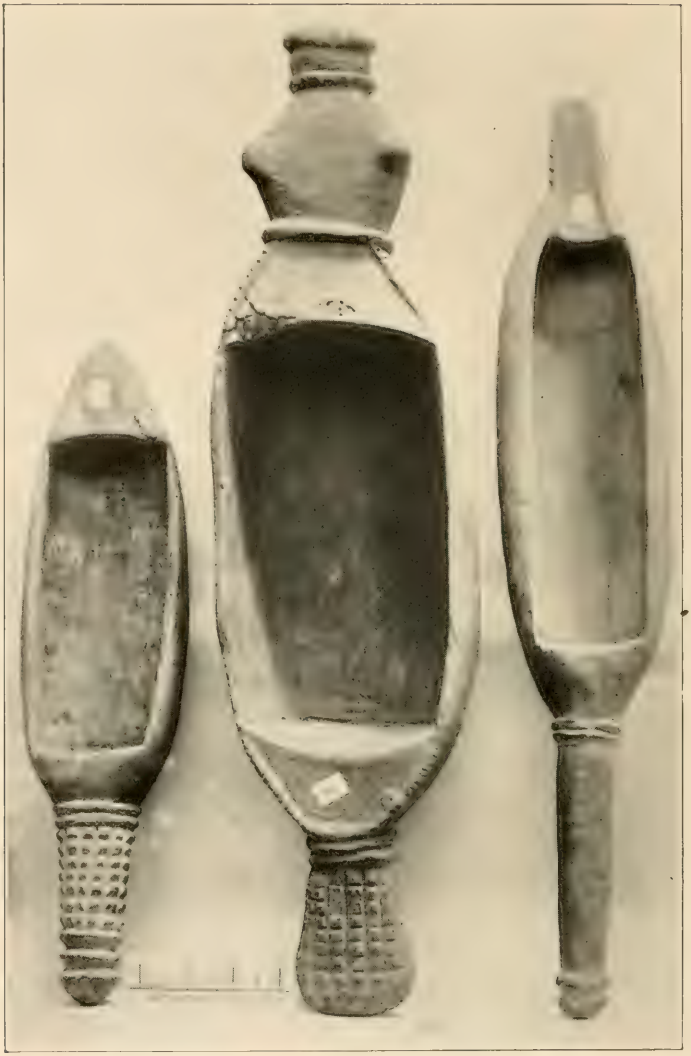
The New Hebridean pottery has been noted through the surrounding islands as a desired article of barter, and the latakias are often heavily laden with the product of the Espiritu Santo kilns. We have in this Museum several pots of good form and hard material but none so elaborately decorated; the quality of strength is, however, wanting in this bowl (Fig. 13). In the Etheridge collection are several other examples, none that have apparently been tested by use.

The two adzes from Paama are armed with portions of a shell, apparently a large volute, and are numbered 11,667 and 11,668. The carving is of the same design in both, but one has two masks

9. YAM DISH AND POUNDER.



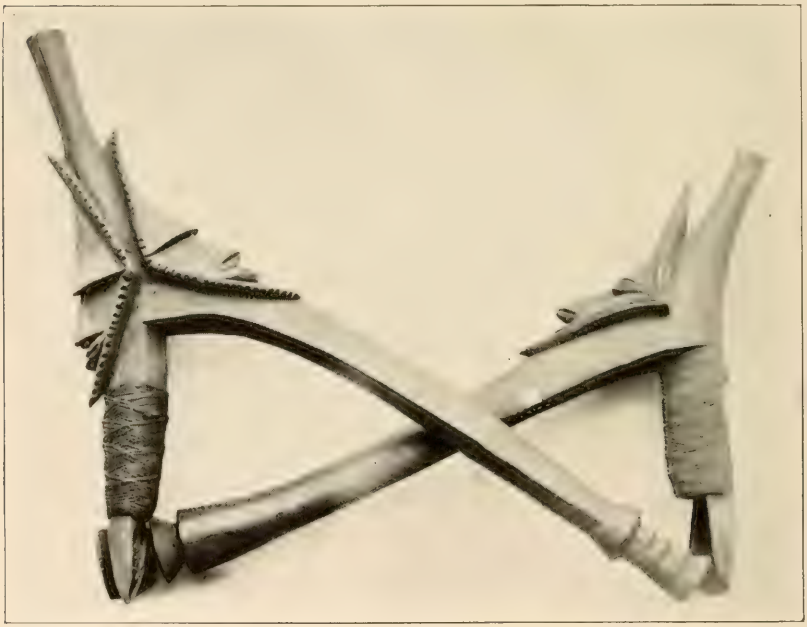
10. YAM POUNDERS.



II. WOODEN DISHES FROM SANTO, N. H.

12. KAVA DISHES FROM ESPIRITU SANTO.

13. POTTERY BOWL FROM ESPIRITU SANTO.



14. SHELL ADZES FROM PAAMA, N. H.

on the handle, the other only one; the lashings of both are voluminous and neatly wound, but while the second has a rounded and perfectly usable handle, the first and more elaborately carved one has a very angular handle that suggests usage merely ceremonial. The little island Paama in the channel between the volcanoes Ambrym and Api, with the larger Malekula not far to the west, is well adapted for a trade centre. Fig. 14.

From the Kiriwina group are certain weapons perhaps ceremonial, for they hardly seem equal to a real fight; perhaps the serrate ones are reminiscent of the shark-teeth armature of Gilbert and other groups. The workmanship is rather poor, although better in the flat No. 11,413 (third in illustration). The serrate ones are numbered 11,412, 11,411 and 11,410. The longest specimen in Fig. 15 is 26 inches. The common Ambrym or Malekula club with arm sling is in most large museums, but the present specimens (Fig. 16) are of better finish than common. No. 11,600 with the sling from Malekula, and 11,651 from Ambrym are beautifully made and polished.

A collection from this region of the Pacific without face masks would be questionable, and we have in Fig. 17 one of the least horrid in this collection. It is from Malekula, a district famous for cannibalism, of which the mouth gives an impression, but the high forehead and quiet eyes seem to add respectability to the diet. As the masks were generally used in religious dances they were often of flimsy construction and were destroyed at the end of the ceremonial for which they were constructed; but the present one is carved in wood, and with paint and no gum to distort the outline it would stand repeated usage.

The very conspicuous two-horned head dress of the image shown in Fig. 18 makes it doubtful whether it should be classed with human or divine beings; the nose and eyes are divine in the New Hebridean idea, while the head dress and mouth are rather human. The treatment of the upper arm constricted by a tight armlet is well marked; so is the belt; there are bracelets, and the fingers are indicated folded on an empty stomach. The sexual attributes have been partially amputated, and the legs are strongly suggestive of elephantiasis; the toes are long and in full number, and the heels are decidedly African. On the whole

15. KIRIWINA WEAPONS.

16. CLUBS FROM AMBRYM AND MALEKULA.

17. MASK FROM MALEKULA, N. H.

18. FIGURE FROM MALEKULA.

19. ATUA FROM ESPIRITU SANTO.

20. ATUA FROM ESPIRITU SANTO, PROFILE.

the human attributes are probably in the majority; but then, the gods of Olympus were at times very human! The extreme height is 38 inches.

The last specimen in this interesting collection to which I shall call attention is a well-carved figure in such an opisthotonic posture as to suggest that it was a boat figure or figure head. The closed eyes, however, militate against that theory, and except through the large ear borings (the right-hand one is broken away) there seems no means of attaching the uncomfortable figure to any support. There is, however, a portion of fresh cut surface between the shoulder blades which may be the place from which a cleat has been broken or removed. The buttocks are prominent, but the coccygeal process is prolonged into a rudimentary tail. The wide-spread legs (in one the thigh, in the other the lower leg is longer) would perhaps be the posture of a dance, but the closed eyes—altogether the chubby and rather attractive figure is a puzzle. The fingers are well done and the nails are very distinct; the right thumb and a portion of the adjoining forefinger have been broken off. The small determined mouth contrasts strangely with the enlarged nostrils: if the hair is intended it can only be wool. No. 11,572, from Big Bay. Figs. 19, 20.

In such a collection as this it is easy to call attention to published accounts of similar things when such accounts exist, but there are always questions that a student of ethnology wishes to ask of the native makers themselves, that he cannot find in the accounts of travelers or even of missionaries who have for years resided among these primitive peoples. I have seen such a dish used in such a way in Java, but what right have I to record that a similar dish is used in the same way and for the same purpose on the island of Ambrym? We know so little of the woods used to fashion into dishes or images, dance clubs or paddles, and if I were on the shores of Ambrym I could probably persuade some capable person to point out to me the tree from which this club or that dish had been cut. Again one could see how the dishes were used, and how the dances conducted and the many slight but important questions that an unscientific collector would never think of asking, but which often make the difference between knowledge and ignorance concerning a specimen.

I have omitted reference to the rare and interesting specimens of prepared and deformed skulls in this collection owing to the non-arrival of craniometric instruments ordered from Zürich. Among the decorated crania is one complete skull without artistic additions. It is understood that the other fourteen are relics of cannibal feasts.

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## LOAN COLLECTION.

R. W. Andrews, Honolulu. (L 916)
Skull. Kauai.

Bruce Cartwright, Jr., Honolulu. (L 888, 920-924)
Proof of Hawaiian 5 cent piece, 1881; stone lamp. Oahu.—Decorated gourd poi bowl, decorated water bottle, spittoon. Hawaiian Ids.—Tortoise-shell spoon. Pelew Ids.

D. T. Fleming, Maui. (L 918)
Serpentine adze handle. California.

C. B. High, Honolulu. (L 913-915)
Three skulls. Hawaiian Ids.

Harry Gregson, Honolulu. (L 903-911)
Kapa anvil, 4 kapa beaters, 3 adzes, sinker. Hawaiian Ids.

Charles Lucas, Honolulu. (L 896-902)
Five kahili, 2 puloulou. Hawaiian Ids.

Mr. and Mrs. David Thrum, and Dr. and Mme. Victor Brochard. (L 889-895)
Mat, 2 kapas. Futuna.—Two kapas, kapa bark, rolled leaf for mat making. Wallis Id.

## RELICS BY GIFT.

Kapiolani Estate, Honolulu. (11,821-11,833)
Relics found in the palace at Kailua, Hawaii: Outrigger or brace for Kamehameha's double canoe; cattle brand of Kamehameha IV; portraits by Burgess of Kamehameha IV and Emma; photograph of Princess Ruth; heavy wooden mallet.—From the Hui Hale Naua: Two each chairs, stands and candle sticks.

Eliz. K. Wilcox Estate, Honolulu. (B 219)
Box containing regalia of the Hale Naua.

Geo. H. Wond, Honolulu. (B 408)
Dress of Princess Kaiulani.

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Volumes received by exchange ..... 165
Volumes received by purchase..... 190
Volumes received by gift..... 157—512
Pamphlets received by exchange..... 640
Pamphlets received by purchase ..... 57
Pamphlets received by gift ..... 223—920
Total ..... 1432

Photographs—

50 views of Sydney in 1893. Given by Dr. W. T. Brigham.

5 large and 12 medium, framed, of Hawaiian scenes. Given by Mr. R. J. Baker.

103 views of Kilauea. Given by Dr. Arthur L. Day.

2 framed views of early Honolulu. Given by Mr. W. M. Giffard.

Manuscripts—

Bingham Gilbertese manuscripts. Given by Prof. H. Bingham.

Horace Mann's notes on Hawaiian flora. Given by Dr. W. T. Brigham.

Poepoe Hawaiian papers. Purchased.

Also manuscripts of Fornander's Polynesian Race, vol. iii. Loaned by Mr. W. M. Giffard.

Five names have been added to the list of exchanges.

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## LIST OF EXCHANGES.

Adelaide, South Australia.—
Royal Geographical Society of South Australia.
Royal Society of South Australia.
South Australian Museum.
Amherst, Mass.—Amherst College Library.
Amsterdam, Holland.—Universiteit van Amsterdam.
Auckland, N. Z.—Auckland Institute.
Baltimore, Md.—
Johns Hopkins University.
Maryland Geological Survey.
Barcelona, Spain.—Real Academia de Ciencias y Artes de Barcelona.
Berkeley, Cal.—University of California.
Berlin, Germany.—
Anthropologische Gesellschaft.
Königl. Museum für Völkerkunde.
Berne, Switzerland.—Berne Historisches Museum.

Boston, Mass.—
American Academy of Arts and Sciences.
Boston Public Library.
Boston Society of Natural History.
Museum of Fine Arts.
Bremen, Germany.—Museum für Natur-, Völker- und Handelskunde.
Brisbane, Queensland.—
Queensland Museum.
Royal Society of Queensland.
Brooklyn, N. Y.—Museum of the Brooklyn Institute of Fine Arts and Sciences.
Brussels, Belgium.—
Société Royale d'Archéologie de Bruxelles.
Société Royale Malacologique de Belgique.
Buda-Pest, Hungary.—Museum National Hongrois.
Buenos Aires, Argentine Republic.—Museo Nacional de Buenos Aires.
Buitenzorg, Java.—Jardin Botanique de Buitenzorg.
Calcutta, India.—
Asiatic Society of Bengal.
Indian Museum.
Cambridge, Mass.—
Harvard University Library.
Museum of Comparative Zoology.
Peabody Museum.
Capetown, South Africa.—South African Museum.
Chicago, Ill.—Field Museum.
Christchurch, N. Z.—Canterbury Museum.
Cologne, Germany.—Rautenstrauch-Joest Museum.
Colombo, Ceylon.—Colombo Museum.
Copenhagen, Denmark.—Société Royale des Antiquaires du Nord.
Dresden, Germany.—
Königl. Zoologisches und Anthropologisch-Ethnographisches Museum.
Verein für Erdkunde.
Dublin, Ireland.—Royal Irish Academy.
Edinburgh, Scotland.—Royal Society of Edinburgh.
Florence, Italy.—Società Italiana di Antropologia.
Frankfurt on Main, Germany.—Städtisches Völker-Museum.
Geelong, Victoria.—Gordon Technical College.
Genoa, Italy.—Museo Civico di Storia Naturale di Genoa.
Giessen, Germany.—Oberhessische Gesellschaft für Natur- und Heilkunde.
Halle, Germany.—Kaiserl. Leop. Carol. Akademie der Naturforscher.
Hamburg, Germany.—Museum für Völkerkunde.
Hanover, N. H.—Dartmouth College.
Hilo, Hawaii.—Hilo Public Library.
Honolulu, Hawaii.—
Board of Commissioners of Agriculture and Forestry.
Hawaii Agricultural Experiment Station.
Hawaiian Evangelical Association.

Honolulu, Hawaii.—*Continued.*
Hawaiian Historical Society.
Hawaiian Sugar Planters Association.
Honolulu Library Association.
Mid-Pacific Magazine.
Oahu College.
U. S. Experiment Station.
Lawrence, Kansas.—University of Kansas.
Leiden, Holland.—
Rijks Ethnographisches Museum.
Rijks Museum van Natuurlijke Historie.
Leipzig, Germany.—Museum für Völkerkunde.
Liverpool, England.—Liverpool School of Tropical Medicine.
London, England.—
Linnean Society of London.
Royal Anthropological Institute.
Madras, India.—Government Museum.
Manila, P. I.—Bureau of Science.
Melbourne, Victoria.—
National Museum.
Royal Society of Victoria.
Mexico.—Instituto Geológico de Mexico.
Minneapolis, Minn.—University of Minnesota.
Munich, Germany.—Ethnographisches Museum.
Neuchâtel, Switzerland.—Société Neuchâteloise de Géographie.
New Haven, Ct.—
Connecticut Academy of Arts and Sciences.
Yale University Library.
New Plymouth, N. Z.—Polynesian Society.
New York, N. Y.—
American Geographical Society.
American Museum of Natural History.
Columbia University Library.
New York Botanical Garden.
Oberlin, Ohio.—Oberlin College.
Ottawa, Canada.—
Geological Survey of Canada.
Royal Society of Canada.
Para, Brazil.—Museu Goeldi.
Paris, France.—
École d'Anthropologie.
Société d'Anthropologie.
Philadelphia, Pa.—
Academy of Natural Sciences of Philadelphia.
American Philosophical Society.
Free Museum of Science and Art.
The Philadelphia Museums.

Philadelphia, Pa.—*Continued.*
University of Pennsylvania.
Wagner Free Institute of Science.
Pietermaritzburg, South Africa.—Natal Government Museum.
Pittsburg, Pa.—Carnegie Museum.
Plymouth, England.—Marine Biological Association of the United Kingdom.
Portici, Italy.—Laboratorio di Zoologia Generale e Agraria.
Rio de Janeiro.—L'Instituto de Maguinhos.
Rome, Italy.—Accademia dei Lincei.
Salem, Mass.—Peabody Academy of Science.
San Francisco, Cal.—California Academy of Sciences.
Sâo Paulo, Brazil.—Museu Paulista.
Sarawak, Borneo.—Sarawak Museum.
Singapore, Straits Settlements.—Royal Asiatic Society (Straits Branch).
St. Gabriel Mödling bei Wien.—Anthropos.
St. Louis, Mo.—Missouri Botanical Garden.
Stanford University, Cal.—Leland Stanford Junior University.
Stockholm, Sweden.—Kongl. Vitterhets Historie och Antiqvitets Akademien.
Stuttgart, Germany.—Museum für Länder- und Völkerkunde.
Suva, Fiji.—Na Mata.
Sydney, N. S. W.—
Australasian Association for the Advancement of Science.
Australian Museum.
Department of Agriculture.
Department of Fisheries.
Department of Mines.
Linnean Society of New South Wales.
Royal Society of New South Wales.
Technological Museum.
Tufts College, Mass.—Tufts College.
Uppsala, Sweden.—University of Uppsala.
Victoria, British Columbia.—Provincial Museum.
Vienna, Austria.—
Anthropologisch Gesellschaft in Wien.
K. K. Naturhistorisches Hofmuseum.
Wanganui, N. Z.—Public Museum.
Washington, D. C.—
Bureau of American Ethnology.
Carnegie Institution of Washington.
Library of Congress.
Smithsonian Institution.
U. S. Geological Survey.
U. S. National Museum.
Wellington, N. Z.—
Dominion Museum.
New Zealand Institute.
Zürich, Switzerland.—Naturforschende Gesellschaft.

# PUBLICATIONS

OF THE

# Bernice Pauahi Bishop Museum

## Honolulu, Hawaii, U. S. A.

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### MEMOIRS.

(Quarto.)

Vol. I.—Nos. 1-5. 1899-1903.

Vol. II.—Nos. 1-4. 1906-1909.

Vol. III.—Ka Hana Kapa: the making of bark-cloth in Hawaii. By Wm. T. Brigham. 1911. Complete volume.

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### OCCASIONAL PAPERS.

(Octavo.)

Vol. I.—Nos. 1-5. 1898-1902. [No. 1 out of print.]

Vol. II.—Nos. 1-5. 1903-1907.

Vol. III.—Nos. 1, 2. 1907-. [Volume incomplete.]

Vol. IV.—Nos. 1-5. 1906-1911.

Vol. V.—No. 1. New Hawaiian Plants, III. By Charles N. Forbes.—Preliminary Observations Concerning the Plant Invasion on Some Lava Flows of Mauna Loa, Hawaii. By Charles N. Forbes. 1912.

No. 2. Director's Report for 1911.—The New Laboratory.—Another Curved Adze. By Wm. T. Brigham. 1912.

No. 3. Notes on the Flora of Kahoolawe and Molokini. By Charles N. Forbes.—An Enumeration of Niihau Plants. By Charles N. Forbes. 1913.

No. 4. Director's Report for 1912. 1913.

No. 5. Director's Report of a Journey Around the World to Study Matters Relating to Museums. 1912. With index to volume.

Vol. VI.—No. 1. Director's Report for 1913.—New Hawaiian Plants, IV. By Charles N. Forbes. 1913.

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A Handbook for the Bishop Museum. 1903. [Out of print.]

Bishop Museum Handbook.—Part 1: The Hawaiian Collections. 1915. Octavo.

Index to Abraham Fornander's "Polynesian Race." By John F. G. Stokes. 1909. Octavo.

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A detailed list, with prices, will be mailed to any address on application to the Librarian.

# OCCASIONAL PAPERS

OF THE

# BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

Smithsonian Inst
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VOL. VI—NO. 3

# Director's Report for 1915

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HONOLULU, H. I.
BISHOP MUSEUM PRESS
1916

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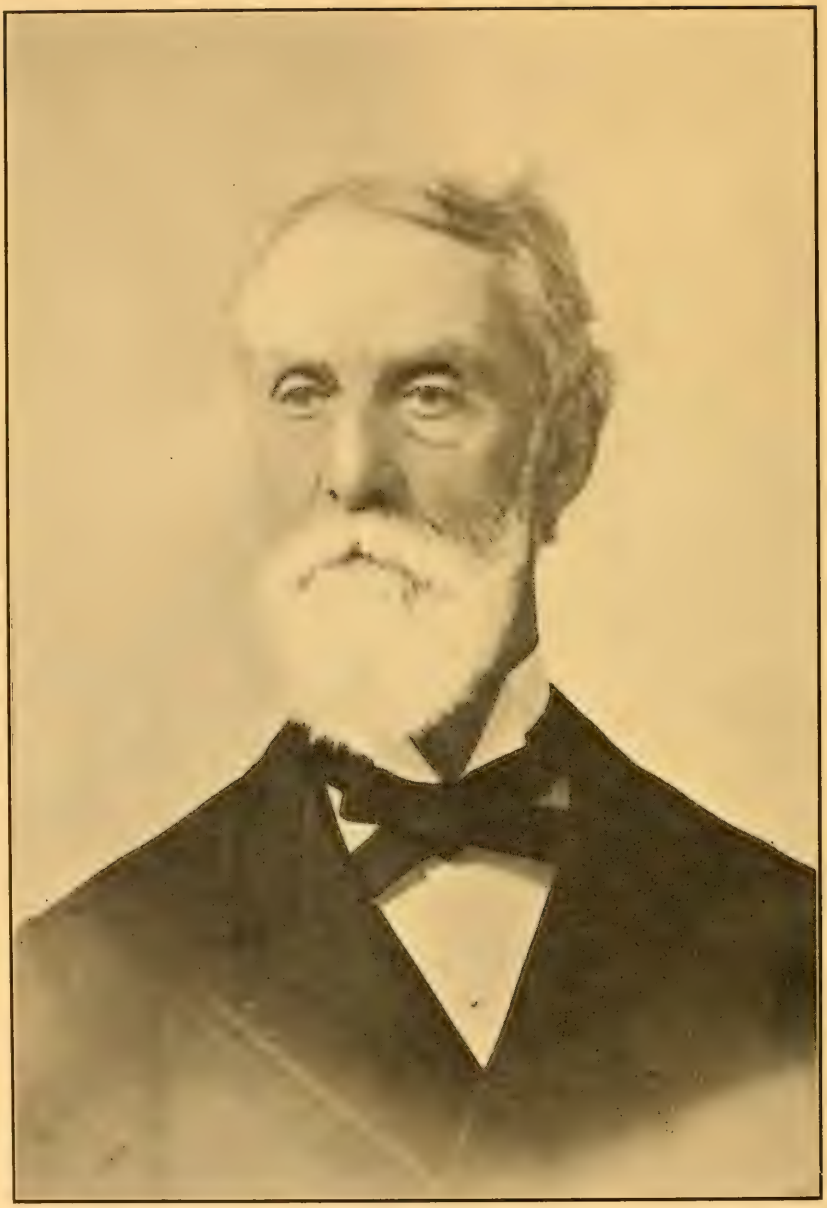


CHARLES REED BISHOP
About 1890

# OCCASIONAL PAPERS

OF THE

# BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

Smithsonian Institu
SEP 6 1916
National Museum

VOL. VI—NO. 3

# Director's Report for 1915

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1916

REPORT PRESENTED APRIL 10, 1916.

RETURNED APPROVED JULY 10, 1916.

# Director's Report for 1915

Although the Annual Reports of this Museum are primarily intended to record the activities of the staff and the apparent results of their work during the year, they must also serve as brief chapters in the history of our institution which has now passed the first quarter century of its existence, and in view of the lamented death of its founder on June 7, 1915, it may be permitted me to briefly review the connection of Charles Reed Bishop with the Museum to which he gave the name of his beloved wife, who died October, 1884.

Dr. Charles McEwan Hyde, afterward secretary of the Museum Trustees, should be credited with the earliest suggestion of a museum of Hawaiian material, and Dr. Hyde's proposal was eagerly seconded by Honorable Sanford Ballard Dole, afterwards president of the Museum Trustees, and Mr. Bishop was inclined to follow out a part of the suggestion. When the project took form in Mr. Bishop's mind for the erection of a memorial museum in the midst of the premises of the schools Bernice Pauahi had founded, Mr. Dole wrote to me (then living in Boston), noting the importance of having it a general museum of things Polynesian, and situated in the town, as there were then no easy means of getting to the rather out of the way schools. In reply I urged the former residence of the Bishops, built by Paki, Haleakala, on King Street, as a suitable site for such a museum, and suggested the inclusion of the existing Government Museum in the Judiciary Building, but Mr. Bishop was not then ready to adopt the more elaborate plan, and clung to the idea of a somewhat private and limited museum to preserve the combined Pauahi and Emma treasures (still the most important Hawaiian collection in the

present Museum), the whole to be in the care and custody of the teachers of the Kamehameha Schools.[1]

When I transferred my residence to these islands in 1888, I thought little of the school cabinet plan and for two years was busily engaged, with the assistance of Mr. Acland Wansey, in collecting material and especially photographs all over the group for a history of the Hawaiian Islands which Mr. Bishop had engaged me to prepare, and I do not remember visiting the school grounds until the Museum building (the first of *cut* stone on the islands), had been erected, when one afternoon Mr. Bishop came to my house on School Street and asked me to drive out with him and see what had been done. It was my first view of a building in which I took little interest, for I knew what school cabinets of curiosities almost invariably become in untrained and uninterested hands, and the appearance of the bare walls and unfloored interior was not in the least attractive to me, and I did not visit it again until Mr. Bishop showed me the Emerson collections and some other rather unimportant material that he had partly displayed in the basement of his house on Emma Street, and asked me to arrange these in the new building which had by that time been floored, and the kahili cases built into the smaller of the two exhibition rooms. As I remember, none of the Emma collection or the choicer of Mrs. Bishop's treasures were in the basement; indeed it was months before the whole of these came to the Museum.

I had already photographed the kahilis *en masse* in the garden of the Emma Street house, and also groups of other Hawaiian

[1] A chapter in the history of this Museum hitherto unknown to the Director has been called to his attention by a member of the Board of Trustees. It seems that the Princess Pauahi and Queen Emma had discussed the importance of preserving the Hawaiian relics they both had in notable numbers, but no definite plan of a museum was reached when Mrs. Bishop died bequeathing her collection to her husband. The following year the Queen died leaving her collection by a codicil to her will to be joined to that of her old friend in such a museum as might later be decided upon. The codicil was not legally witnessed and could not be probated. A. J. Cartwright, the trustee of the estate, arranged a deed of gift signed by all the heirs or legatees and the intention of Queen Emma so expressed was carried out and her treasures joined those already in Mr. Bishop's hands.

antiquities in the collection, for illustration in my proposed history, and I of course went out to Kalihi to see how it would be possible to arrange the specimens in the two very moderate sized rooms at my disposal before agreeing to Mr. Bishop's proposal: it was a rather uninteresting interruption to my historical studies, and besides, except for the cases in the Kahili Room, there were neither cases nor shelves, nor even tables for the exhibition or even storage of the very miscellaneous collection. The interior walls were all white plaster, and the koa stairway, very ugly architecturally, looked too bright against the plaster walls. Mr. Bishop did not turn the Museum over to the Trustees until it had gathered within its walls all that he had in the way of Hawaiian relics.

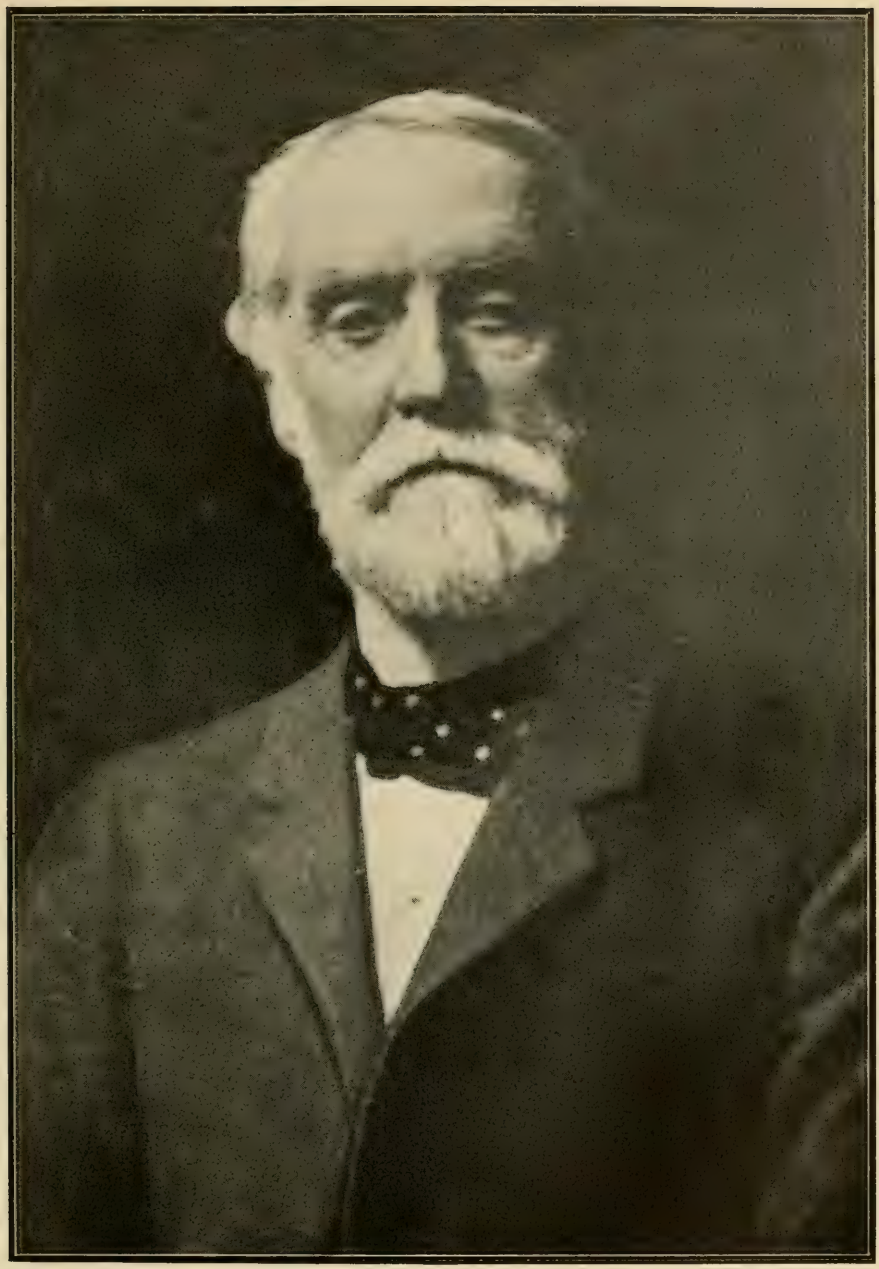
I had at first some difficulty in getting cheap redwood cases with common glass of very poor quality in which to place the more delicate specimens, but I felt that there was the foundation for a good ethnological museum if it could be properly housed and displayed, with such additions as were needed to fill *lacunæ*, and I undertook the not very interesting task. If it had not been for the full note books I had made in my previous visit to these islands in 1864-65, I could have done little in cataloguing the heterogeneous mass spread out on the temporary board tables; but there came another help in the acquisition of the Government Museum collections which contained many much needed specimens, although many were decayed and insect eaten owing to neglect or ignorance of museum methods.

I have mentioned that when I first heard of Mr. Bishop's proposed museum I had suggested the incorporation of this Government collection, but for some time there was considerable opposition on the part of the Government rather than on Mr. Bishop's part, when a chance remark of the Attorney-General, that he needed more room and that the visitors to the Museum disturbed his department, gave me the hint and I urged him to use all his great influence to secure the transfer of the collections to the new Kalihi building and thus putting at the disposal of the law department

the needed adjoining room. I was successful, and was superintending the packing of the specimens for removal when Captain Mist, secretary in the Foreign Office, came hurriedly in and told me that the "Charleston" was signalled with her flag at half-mast, and as Kalakaua was returning on her it was probable that he was dead. I at once went out and got all the help I could, engaged all the express carts to bring me packing cases, and before the end of that eventful day the whole collection was dumped on the floors of the new museum. A change of government might keep the museum in its old place for the present, and I would take no chances.

In those early days the interest of Mr. Bishop centred in the preservation and exhibition of the relics of Mrs. Bishop, and it was some time before I thought best to broach my plan for a general Polynesian museum. At first he did not take kindly to it, but at last consented to build Polynesian Hall, although he finally left the islands before the cases were placed in this first addition to the original edifice. In the meantime he had transferred me together with the building and its collections to a Board of Trustees, and I, finding that Dr. Alexander had plans for writing a more extensive history of the Hawaiian Islands than he had attempted in his brief history of these islands already published, withdrew in favor of one so much more competent, and devoted my time entirely to the installation of the Polynesian exhibits in the new hall and in the preparation of plans for a more extensive Hawaiian Hall, even then needed.

Beyond this I need not follow the history, but I must mention the last connection he had with this Museum when he had passed his ninety-third birthday. On April 14, 1915, I had taken a large photograph of Hawaiian Hall interior to send to him, and this he had framed, and he expressed his pleasure to me in the last note I had from his pen. In May, my secretary, Mr. Dean H. Lake, called on him at his residence in Berkeley, and Mr. Bishop took down the picture and asked Mr. Lake a number of questions as to



CHARLES REED BISHOP
Ninetieth Year

the specimens appearing in the view, showing a vivid interest in the Museum. Mr. Lake asked him: "What shall I tell Dr. Brigham of your health?" He said: "Tell him that I am well, but not very well." Two weeks after this the end came, June 7th, and later we gathered in the old Kawaiahao church at the impressive service over his ashes, and followed in the long procession to the Royal Vault in Nuuanu Valley where he had placed the remains of his wife, and there among the relics of the Kamehamehas his ashes repose, and the vault was permanently sealed. His earthly connection with the Museum he had founded and endowed ended, but his memory has gone over the scientific world where the publications of his museum are known, and will be cherished by the workers in the Museum, and the students who visit it. The people of Honolulu will not forget the benefactor in this and so many other generous gifts.[1]

The year at the Museum has not fallen behind its predecessors in work accomplished and in public interest shown in its exhibits. In the latter part of June the Director was sent to represent this Museum at the annual meeting of the American Association of Museums held in San Francisco on the 6th–9th of July; and this he found fruitful in suggestions, pleasant acquaintances made, hospitable entertainments and visits to choice collections, and he availed himself of the opportunity to present our difficulties in obtaining alcohol for specimens, and on the increased postage on our publications, which under the new parcel postal rules cost more for postage to places in the United States than to Europe, the East Indies, Africa and Australia. All of which troubles were referred to suitable committees to present the same to Government officials in charge of such matters. The visit gave also an opportunity to see the expositions at San Diego and San Francisco; on

[1] It is probable that an extended notice of Mr. Bishop may later be issued by the Trustees in separate form; hence the brevity of this memorandum.

all of which matters the Director has reported to the Trustees, and his communications to the Association have been published in its Annual Report lately issued. These reunions of curators and workers in the different museums of the country give the best possible opportunities for exchange of ideas and mutual encouragement, and it is hoped that at some future time the Association may meet here: such was the wish, I believe, of the majority of the members of the Association gathered in San Francisco.

REPORT OF A TRIP TO SAN FRANCISCO AS DELEGATE REPRESENTING THE BISHOP MUSEUM AT THE MEETING OF THE AMERICAN ASSOCIATION OF MUSEUMS, JULY 6–9, 1915.

In rendering a report of my mission as your delegate to the San Francisco meeting of the American Association of Museums, I find it difficult to confine myself strictly to the doings of the four days of the meeting, there were so many interesting matters on the journey and during the days waiting for a steamer passage home; but I will, as briefly as possible, describe the meeting and its results.

I arrived from Vancouver late on July 4th, and although Monday was a holiday it was utilized by first calling to secure my passage home on the Sierra, and then visiting the California Academy of Sciences in its temporary rooms on Sansome Street, to obtain preliminary information of the coming meeting. It was my good fortune to find there Dr. Dickerson, who furnished me with a programme of the expected work, and then showed me the splendid collection of Galapagos secured by the Academy Expedition.

Tuesday morning we assembled in the hall of the Academy, and after the formal organization and reports, I was able to present our difficulties in regard to the duty on alcohol, and also our postal troubles. In both cases committees were appointed to consider the matter and bring it to the attention of the Federal Government.

A description of the new building of the Academy in Golden Gate Park, written by the Director, Dr. B. W. Evermann, then absent in the East, was read by Dr. Roy F. Dickerson. A little later in the day we inspected the single section of this one-storied building which was nearly ready for occupancy. At 1 p. m. we lunched in Golden Gate Park as guests of the City, and at two we visited the Museum of Anthropology of the University of California, at present in one of the buildings of the Affiliated Colleges near the park. This contains the extensive collections purchased by Mrs. Phoebe Hearst at a cost of over a million dollars, and presented to the University, which has at present no suitable building for its proper exhibition. In this vast archaeological collection are a few good specimens from Hawaii and other Pacific Ocean groups. In the lecture room we were comfortably seated, and there listened to a number of papers on museum subjects, among them an interesting one on an inexpensive temporary museum equipment, illustrated by the ingenious methods put in practice by Mr. E. W. Gifford in housing a vast collection for a few hundred dollars. Discussion also arose on the union of science and art in museums, and I was moved to make a rather lengthy address on the need of art in scientific museums. It was not until I saw the many yards of stenographic report writhing on the floor that I was aware of the time I had occupied, but judging by the frequent applause, it was not tedious to my audience.

Later in the afternoon we visited the Memorial Museum in the Park, and in that rather crowded building we enjoyed the description by Prof. George Barron of the "Pioneer Boom". In the evening at the San Francisco Institution of Art, Mr. Oliver P. Farrington gave the presidential address on "The Rise of Natural History Museums", and the Secretary, Mr. Paul M. Rea, spoke on "America's Oldest Museum", but I was too weary with the day's work to attend this interesting meeting.

On Wednesday, July 7, we met at 8:45 a. m. at the Bureau of Mining to take the Key Route to Oakland, and at ten we were at

the Oakland Public Museum. I was especially interested in this for I had been repeatedly consulted by the late Curator Mr. C. P. Wilcomb, and I have been regularly invited to attend public celebrations here. The installation is in a dwelling house not intended for a museum, but it has been very ingeniously adapted to a most pleasing exhibition of what should greatly interest and instruct the public. Especially attractive is the Colonial kitchen and rooms containing furniture and implements of our New England ancestors. I did not expect to see so much on the Pacific Coast or outside of Salem, Plymouth, or Mt. Vernon. A convenient lecture room has been added to the house in which, after an address of welcome, we listened to an interesting account, read by Mrs. D. W. de Veer, of Mr. Wilcomb's work in building up this most creditable museum. The Secretary spoke of the aims of the American Association of Museums, and following this came the election of officers for the ensuing year.

At 12:30 we were the guests of the City at luncheon in the fine new Oakland Hotel, where we were joined by Mr. Wm. H. Hall, formerly taxidermist in the Bishop Museum. After various speeches, cars were were provided to take us to the Piedmont Art Gallery in a private park, and then on through an attractive country to the University of California in Berkeley, where we had an interesting inspection of museums and grounds and were treated to an exhibition of fire-making and arrow head chipping by a California Indian, Nishi. Our dinner was at the Faculty Club, famous for its hospitality.

At 7:30, in the Administration Building, we had several interesting papers, one by Prof. Homer R. Dill on "Building an Educational Museum as a Function of the University", and I, in response to a request, explained my views of the great educational value of museum work and how members of a staff could easily be trained in photography and drawing and more generally in the use of eye and hand. I claimed that a museum was not merely to interest and in some measure to educate visitors, but was, in fact, a great

training school for developing faculties of observation and execution to be applied to one or several departments. I explained that the members of the Bishop Museum staff were not, one a botanist, another an ethnologist, another a conchologist, but each was interested in the work of all and ready to help in collecting or preserving for all. If one is a more than usually skilful photographer or draughtsman he puts his activities in use in teaching or helping a colleague who had not acquired as much skill.

Prof. Janius Henderson gave us an illustrated account of "An Early Venture in Habitat Groups". In returning, we crossed the bay conscious of a well-filled day.

Thursday, July 8, we met at the Southern Pacific station to to take the nine o'clock train for Palo Alto where automobiles in plenty were waiting to take us on the many pleasant drives through the city and about the University grounds, now greatly improved since the earthquake disaster. At noon we lunched as guests of the Leland Stanford Junior University, and at 1:30 we were in one of the lecture rooms of the museum where the President, Dr. J. C. Branner, gave us a most cordial address of welcome. Mr. H. C. Henderson gave an interesting and instructive account of the "Origin of Moving Pictures". Views shown of the museum immediately after the earthquake were especially instructive. We visited the chapel, which is still in the hands of restorers, but to my taste this building is too gorgeous and over-decorated to be conducive to religious mentality. I have several times visited this University, and rejoice in the great external improvement visible on every side.

On Friday, July 9, there was a business meeting at the Academy; in the afternoon a harbor excursion on the Spreckels's yacht; and in the evening, a reception by Mrs. A. B. Spreckels at her private museum, 2024 Vallejo Street, which I did not attend.

Leaving San Francisco that evening to pass the week-end with a nephew and niece of mine in San Gabriel, I arrived in Los Angeles the following morning, and there had delightful motor

rides through the orchards and by the residences of Pasadena and even to the base of the Sierra Madre mountains. We also visited the City Museum of Los Angeles where I especially desired to see the wonderful skeleton of *Elephas Imperator* which is so large that it makes the skeleton of a mammoth near by almost insignificant. This fine skeleton, together with the remains of the famous sabre-toothed tiger, was found in the asphalt beds and is very perfectly preserved although of a dark color from the preserving medium.

Monday I went to San Diego for the beautiful exhibition there. Apart from the very artistic arrangement of building and grounds, I was much attracted by the United States exhibit of "The History of Man", arranged by Ales Hrdlicka, showing the early skulls from *Pithecanthropos* up. It was, in many ways, the clearest exposition I had seen. There were also excellent casts of the monuments at Quirigua in Guatemala that I had photographed many years ago. Apart from the fruits, the exhibits were good, but neither exhaustive nor remarkable, but later, in viewing the San Francisco exhibition (which I had as yet only seen by night, illumined by the Fourth of July fireworks), I was grateful to the San Diego people for excluding many horrors and monstrosities from their grounds.

On my return to San Francisco I went early in the morning to the exhibition and walked on and on until five in the afternoon, with only a rest for luncheon. I repeated my visit on several days but did not make so long a tramp. The tanks of the United States Fish Commission were well stocked, well kept, and most interesting—a great contrast to the attempted exhibition of fish in the Hawaiian Building near by. In the Canadian Building was perhaps the most attractive exhibit, although the taxidermy of the specimens generally was not good. The Swedish Building had much to attract, and best of all a young gentleman who could give any reasonable information about his country and its exhibits. I never read so good an account of Sweden as was given, well illustrated, in its official catalogue.

I need not extend my description of this great exhibition, for most of you have seen it. I again visited the Museum of Anthropology in the Affiliated Colleges, where Mr. E. W. Gifford spent much time in showing me the treasures in his charge, and on which he lectures Sunday afternoons. By his invitation I met, that evening at a dinner at the Faculty Club, Drs. Waterman and Sapir, and also an old friend of mine, Dr. Setchel, Professor of Botany in the University of California.

I was greatly interested in the railroad up Tamalpais, a mountain that I had climbed fifty-one years ago. Few, alas, of the old redwoods remained, except in the wooded glen named in honor of my departed friend, John Muir.

Just before leaving San Francisco, Dr. B. W. Evermann returned from the East, and renewed his promise to come to this Museum at the earliest possible date.

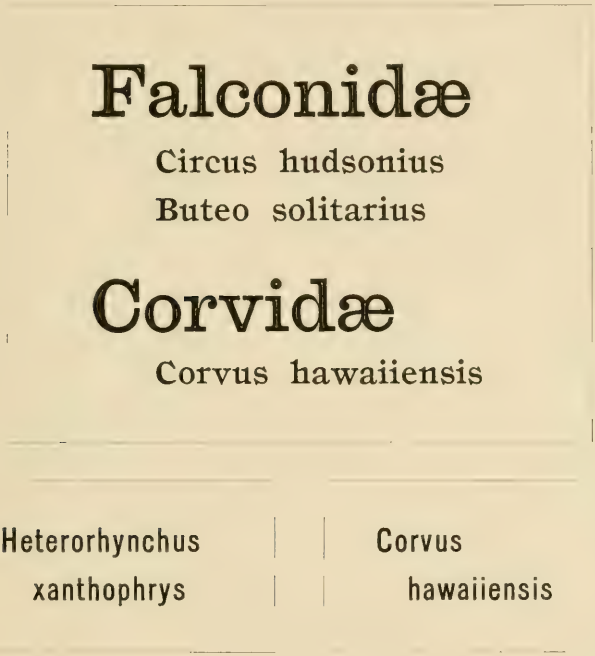
Greatly refreshed by meeting many old and new friends and by the bracing coolness of the climate, I returned on the China, July 30th.

## NEW STEEL STORAGE CASES.

When the Laboratory building was planned it was hoped that in addition to the fire-proof nature of the structure, cases could be found suitable for the protection of perishable specimens such as bird skins, kapa and mats, in this climate abounding in indefatigable indigenous and imported insect pests, but for some time none were found quite satisfactory. For birds especially, of which the Museum has a large and rare collection of the native avifauna, and some good representative specimens from other parts of the Pacific and its shores, this protection was very necessary. The Henshaw collection of Hawaiian birds is very fine, and many of the specimens collected for the Museum by A. Seale in the southeast Pacific and Solomon Islands are of value, and although the curatorship of ornithology has been vacant for some years the collection has been cared for, and this year steel cases have been

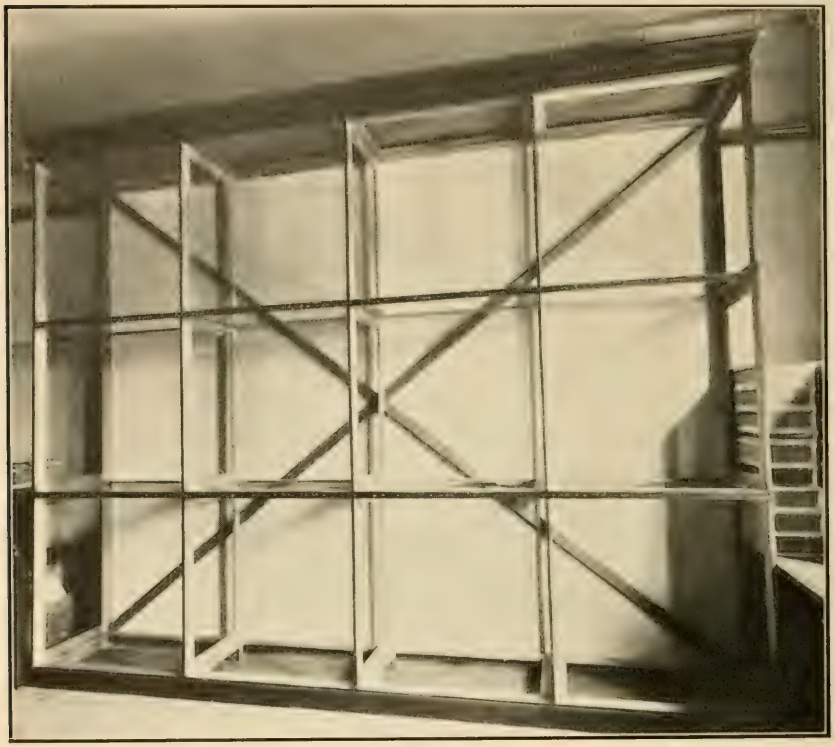
installed in the Laboratory that have, so far, given great satisfaction, and the birds have been placed therein.

The unit is of No. 16 enamelled steel 3x3x2 feet outside measurement. The doors open to the full width of the interior and fold back flat as shown in Fig. 4. The doors close on surface of prepared fabric and are secured by Jenks locks with bolts top and bottom. These cases are placed on wooden racks, light but




exceedingly stiff and strong (Fig. 3), serving to keep the cases from contact with walls or floor and permitting removal of any unit without disturbing its neighbors. The trays are of the same metal in two sizes, supported on triangular runs 2.2 inches apart, welded to sides. For the single cases the dimensions are 22 x 32.7 inches with a depth of 1.7 inch; the smaller size trays for the double cases are 22 x 15.5 inches. The gauge of the larger trays is No. 20; of the smaller, No. 24. The double cases have a partition in the middle, each half with its own door. The bottoms of

the trays are perforated to permit the free circulation of gas in fumigation; each tray has a folding handle with label holder, and on the outside doors are similar but larger holders for the case number and contents (see labels in actual size above). The weight of the empty cases without specimens but with the full



3. RACK FOR STEEL STORAGE CASES.

content of trays is, single unit, 14 trays, 170 pounds; double unit, 28 trays, 210 pounds. To house the kapa specimens and such mounted bird specimens as should be kept in the dark, light shelves of redwood are found satisfactory. The insect cases are all of the double type, of the same exterior size, but the trays do not have perforations but interior rims covered with an upper surface of felt on which the glass cover rests.

4. VIEW OF STORAGE CASES IN BIRD ROOM.

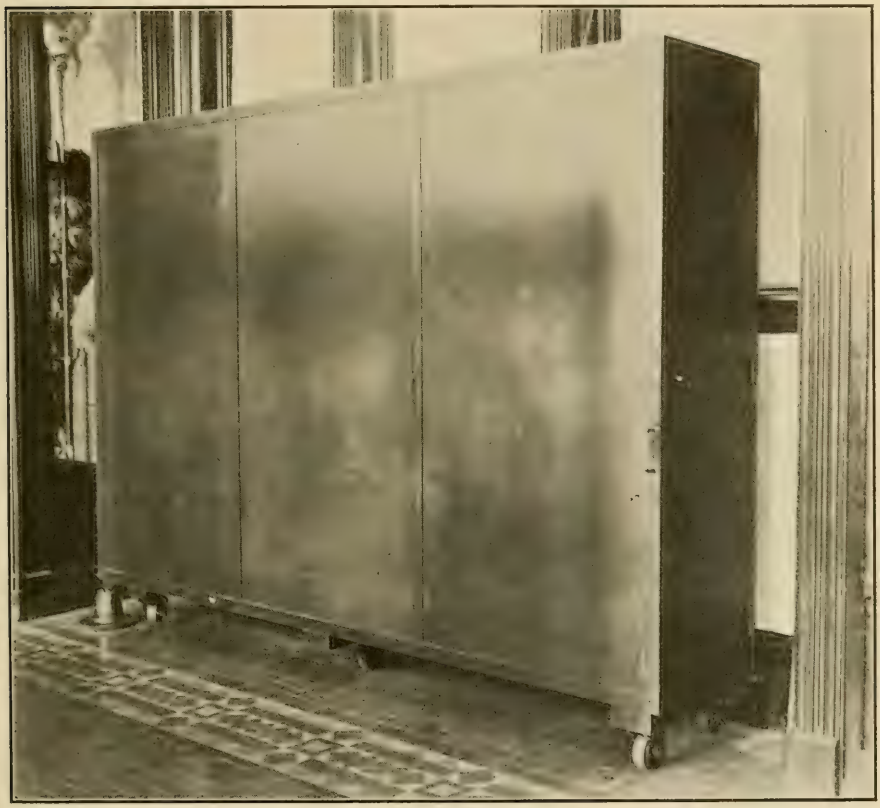
For placing or removing these heavy cases the very convenient hoisting apparatus of the Economy Engineering Company of Chicago has been found of great service, as one man can use it as a truck, or hoist 1000 pounds to a height of 7.7 feet, while the jointed uprights permit it to pass through a door 6.5 feet high or on an ordinary lift.

These steel cases were made by the Art Metal Construction Company of Jamestown, N. Y., and as the feather cloaks—although kept in a room darkened as far as possible while still allowing vision when the visitor's eye became accustomed to the shade—were found to be fading perceptibly, this company was called upon to make a steel case according to the designs of the Director that would keep securely the choice cloaks and capes, while permitting an occasional exhibition. The case idea was suggested by a very good one in the Dresden Museum, but the construction for our own needs was quite different. It is well shown in Fig. 5. Its dimensions are, 10.5 feet in length, 7 feet in height, and 2 feet in depth. Ordinarily it stands against the wall quite out of the way, but at the left hand front corner is a pivot firmly planted in the masonry of the floor on which the whole case readily turns supported on wheels 8 inches from the floor. Within the end door are six frames covered with unbleached cotton cloth, which slide out freely, and when drawn out are supported on a movable trestle. To these frames on both sides are attached by a number of points the cloaks spread to their full extent, but supported in so many places, in all readily detachable, that little strain is brought upon the fabric (Figs. 6, 7).

The opening of the upper gallery of Hawaiian Hall in October made a transfer of the botanical exhibit, including the excellent casts of fruits indigenous to or grown in this Territory, possible, leaving needed room for the increasing series of fish casts. We had already placed in this gallery relics of the ancient chiefs and the thrones and more modern relics of Hawaiian royalty, and also some loan collections of Hawaiian matters. To these have been added temporarily collections of Australian and western Pacific islands for which no space remained in Polynesian Hall. All this

has proved attractive to visitors, and the publication of the new handbook to Hawaiian Hall, has made the entire hall accessible to those who depend on guide books.

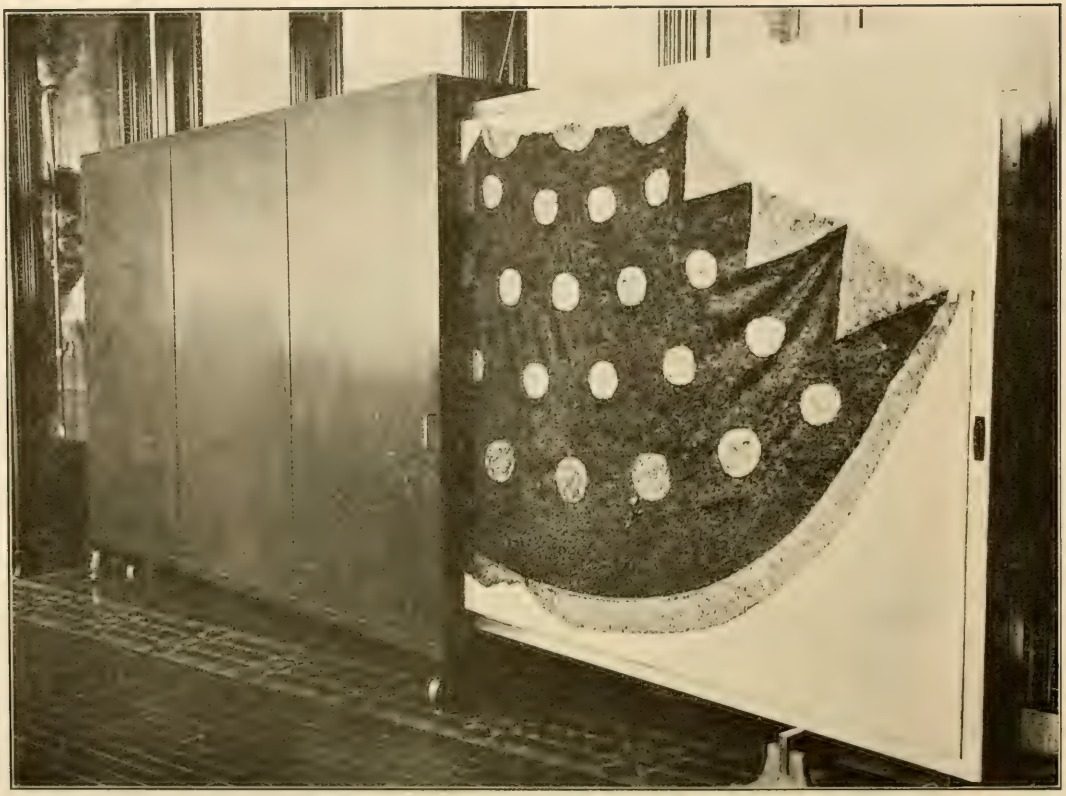
The installation of the steel storage cases on three sides of the room devoted to the birds has put that room in excellent



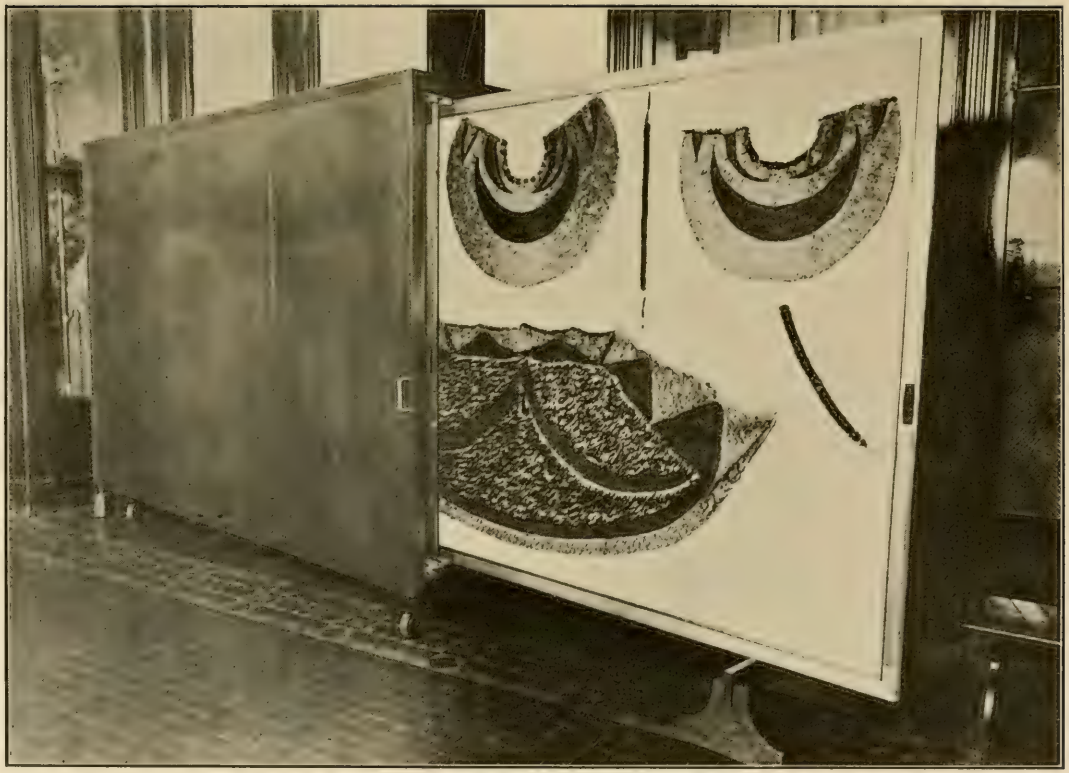
5. CASE FOR THE AHUULA.

order for work, and before long a complete directory of the location of every bird skin in the trays will be completed.

During the year the Fornander Papers, which have been entombed in boxes for many years since their purchase by Mr. Bishop, have at last had a happy resurrection. Mr. Thomas G. Thrum has been selected to edit these very valuable records of the



6. AHUULA CASE OPENED.



7. AHUULA CASE OPENED.

old Hawaiian folk-lore, and the results of his careful work will soon appear in the Memoirs of the Museum, of which they will form Volume IV. Perhaps no one could have been selected with more knowledge of the subject, or more genuine love of the subjects of which these papers treat. I believe scholars will owe a debt of gratitude to the Trustees of this Museum for publishing in this way the record of the thoughts of the old Hawaiians, as well as in the preceding volumes the story of their manual dexterity. In these days when the manufacture of old Hawaiian legends keeps pace with the fraudulent idol-making, which, as elsewhere, has been rife on these islands, it is well to preserve records collected by skilled hands and educated brains in the days of comparative primitive innocence.

Of our publications only the Director's Annual Report has been issued, but the printer has been kept busy with a large amount of labels and general work, and the printing of the Fornander papers of Hawaiian folk-lore has progressed so far in Mr. Thrum's editing the original Hawaiian, with translation and notes, that the first part will be issued in the spring of 1916.

Dr. Cooke has ready for the press another of his valuable papers on Hawaiian land shells which will be issued as part of the incomplete Volume III of the Occasional Papers, a volume devoted to conchology. Mr. Forbes has prepared, as will be seen later in this report, a description of new Hawaiian plants.

Mr. Stokes has spent a great amount of time and labor on an historical work that was left wholly without references to authorities and quotations.

Work has also been done on another supplement to the Feather Work of the old Hawaiians, as a result of considerable discoveries of material in Petrograd, Sydney and elsewhere, during the Director's recent journey to study museums.[1]

Another year should add extensively to the published work of the Museum staff.

[1] Occasional Papers, Vol. V, 5. [138]

Much photographic work has been done during the year, putting our excellent facilities for that purpose to their full use by Mr. Dean H. Lake, assistant to the Director. His skill and good taste have done much not only for the illustration of the publications, but also for permanent illustrations for the Museum: his skill in coloring has also proved useful.

Mr. Thompson has added many fine specimens both to the collection of fish and also to the fruits. Our collection of eels, already large, was increased by nearly a dozen, and a number of sharks of the more uncommon species was captured and cast. Nearly eighty casts have been finished.

Mr. Reynolds has not only erected the rack work for the steel storage cases, but has made many racks or stands for specimens, frames for labels, notices and herbarium specimens, and has altered a number of cases to such an extent that they were really made over; he has also attended to the occasional repairs needed on our extensive buildings.

Now that the department of Exhibition has been separated from the general work of the staff, I cannot do better than quote the report to me of our very efficient Superintendent of Exhibitions, Mrs. Helen M. Helvie:

"The attendance of visitors to the Museum kept up very well during the summer, but fell away during the closing months of the year, partly on account of the withdrawal of the Pacific Mail steamers, and partly because many of the remaining steamers entered port on Wednesday when the Museum is closed to the public. Much satisfaction has been expressed by many appreciative tourists at the great number and variety of the exhibits, and general satisfaction has been expressed by all visitors at the opening of the second gallery of Hawaiian Hall, which event occurred October 1st. The number of visitors from Honolulu and the outlying districts, and from the other islands has been very good.

"During the year twenty-five classes from the Oahu schools visited the Museum, representing 685 persons. The interest of the school children in the exhibits is very gratifying, and the

order at all times is beyond criticism; and that statement may also be applied to visitors of every nationality.

"The new method of securing the felt covers on the rail cases in Hawaiian Hall galleries by means of a neat leather strap in the centre of each case is a great improvement. The new aluminum checks, and the checking system for hats, sticks and parcels have proved most satisfactory. Individual sanitary drinking cups have been installed and have been well patronized."

Among distinguished visitors may be mentioned Demetrius Anthony Magula, Director of the Mint, Petrograd; Dr. Lyman C. Newell, Professor of Chemistry in Boston University; Dr. Th. Mortensen of Copenhagen, studying our echinoderms; August Busch, U. S. National Museum, Washington; Prof. Benoy Kumar Sarkar, M.A., Allahabad, India; Dr. L. O. Howard of Washington; Dr. Wm. H. Welch, LL.D.; Dr. Simon Flexner and party, and Miss G. E. Benham.

TABLE OF ATTENDANCE.

| 1915 | Whites. | Hawaiians. | Portuguese. | Chinese. | Japanese. | Others. | Days open. | Average. | Totals. |
|---|---|---|---|---|---|---|---|---|---|
| January | 652 | 91 | 72 | 189 | 299 | 24 | 22 | 60.4 | 1,327 |
| February | 937 | 184 | 162 | 88 | 140 | 50 | 21 | 74.4 | 1,561 |
| March | 754 | 112 | 64 | 81 | 164 | 27 | 22 | 54.7 | 1,202 |
| April | 628 | 80 | 49 | 73 | 178 | 80 | 22 | 49.1 | 1,088 |
| May | 664 | 144 | 47 | 47 | 172 | 34 | 21 | 52.8 | 1,108 |
| June | 562 | 100 | 57 | 60 | 214 | 14 | 20 | 50.4 | 1,007 |
| July | 703 | 340 | 83 | 104 | 250 | 21 | 22 | 68.3 | 1,501 |
| August | 729 | 86 | 58 | 106 | 172 | 17 | 22 | 53.1 | 1,168 |
| September | 531 | 127 | 51 | 96 | 264 | 33 | 21 | 52.5 | 1,102 |
| October | 631 | 109 | 43 | 60 | 170 | 4 | 22 | 46.3 | 1,017 |
| November | 602 | 106 | 25 | 41 | 120 | 20 | 21 | 43.1 | 914 |
| December | 712 | 55 | 25 | 53 | 127 | 18 | 21 | 47.1 | 990 |
| Totals | 8,105 | 1,534 | 736 | 998 | 2,270 | 342 | 257 | 54.5 | 13,985 |

**Ethnology.** I quote from the report to me of Mr. J. F. G. Stokes, the Curator:

"The number of specimens received during the year is satisfactory and well up to the average, but not as large as in the previous year.

"Through an anonymous friend of Mr. Henry Holmes the Museum has been presented with the Helms collections of ethnological and entomological material. The former portion, which concerns my department, consists of a remarkably fine series of Australian and Melanesian specimens, including a few from Micronesia and Polynesia. The main portion of the ethnological collection was gathered by Dr. Richard Helms in western and south Australia where he went as the naturalist of the Elder Exploring Expedition in 1892. It was described and illustrated in Dr. Helms' report on the anthropology of the expedition, in the Transactions of the Royal Society of South Australia, and is a valuable acquisition on this account. The majority of the other specimens are well authenticated and bear a locality label or an inscription naming the sources from which Dr. Helms received them. It is a good collection, and has been made with judgment, and the Museum is very grateful to Mr. Holmes' anonymous friend.

"Other friends, to the number of fifteen, gave tangible evidence of their interest, as may be seen in the lists appended. As before, when any of the curators have been in the field, they have gathered in all that they could that was of interest to the Museum, and we have all helped each other's department in this way. The specimens received during the year have been fairly numerous, but do not deserve special mention. No large collections have been purchased during the year. An average number of commoner specimens have been bought at the door, but the curio stores have not offered anything worth securing.

"Mr. Henriques has added forty-three specimens to his collection already on loan, the most important of which is the small breadfruit-wood surf board, found in the cave at Hookena with the sled described last year. The coconut scraper mentioned in the list was made from a large cone shell, and is the first Hawaiian specimen of the kind to be reported.

"Two trips were made in the field, and though not necessarily in connection with my department the trips yielded fruit in the

form of ethnological specimens. The first was for the purpose of securing fresh specimens of the Hawaiian rat, which, it was generally believed, was extinct. Altogether nine were secured in the flesh, with fragments of many skeletons, and all the material on hand, except two live rats, were sent to Dr. Witmer Stone, of the Philadelphia Academy of Natural Sciences, for description. Several petrels, crustaceans and lizards were secured at the same time. The second trip was mainly for the purpose of aiding Mr. T. G. Thrum in the completion of his list of Hawaiian heiau. Mr. Thrum's work has been of great value to us in our own heiau researches.

"Of other work, Dr. W. D. Alexander's unfinished manuscript of "A Critical History of the Hawaiian People" was handed to me for the insertion, if possible, of the names of the authorities quoted. It is highly probable that had Dr. Alexander lived to complete his work, these authorities would have been exactly quoted as a matter of course, and no one would be better able than the doctor. Several months were spent among the books of Dr. Alexander, the Historical Society and the Museum, and the manuscript put in the best possible order for publication. I will prepare an index after the work is in type. As authorized by the Trustees, I engaged Mr. Y. E. Tseu to continue the platting of the heiau from my measurements taken some years ago, and as the platting continues I am writing out the descriptions. The work is progressing, but not so rapidly as I expected, as the lapse of time has necessarily made it difficult to recollect detail."

**Entomology.** "The Helms collection of insects, purchased from the heirs of the late Dr. Richard Helms, arrived from Australia in June, 1915, and the work of the Honorary Curator since then has been devoted exclusively to it, cleaning and repinning specimens where necessary, repairing those that were broken in transit, and getting the whole in readiness for transferring to the Museum cabinets. The collection was contained in ninety-two insect boxes of several sizes, some of which are very undesirable for insect preservation, and the collection will be transferred to the new steel cabinets as soon as possible.

"All the chief orders of insects are represented in this collection, but by far the greater number of specimens belong to the

Coleoptera. An estimate of the number of specimens of this order is about 22,000, mostly Australian, but about 3000 are from New Zealand, and some also from other islands of the Pacific. Many are of bizarre forms and wonderful morphological structure, and the most beautiful colors and patterns. The families of beetles most abundantly represented are the Carabidæ, Scarabæidæ, Buprestidæ, Carambycidæ, Tenebrionidæ, Chrysomelidæ and Curculionidæ. Many of the specimens are labelled, but there are a good many undetermined species.

"Estimates of the other orders give about 500 specimens of Orthoptera, 1500 Hemiptera, 800 Lepidoptera, 1000 Diptera, 1300 Hymenoptera, and a few Neuroptera: altogether some 27,000 or more specimens. There is much unmounted material besides. There are many specimens of extreme interest to entomologists in all of the orders, and the collection will be of great value for reference when it is installed in the Museum cabinets and convenient for the use of the local entomologists. The Museum is exceedingly fortunate in securing this valuable collection from the Australian region, which is noted for its very peculiar insect fauna, and from which specimens are sought by museums the world over."

The Director would only add that the excellent and voluntary work done by Mr. Otto H. Swezey is appreciated by Trustees and staff.

**Botany.** Quoting from the report of the Curator, Charles N. Forbes: "In addition to the usual routine work connected with the Herbarium, which has been much the same as reported on in previous years, an attempt has been made this year to add to the botanical exhibits. This was made possible with the opening of the second gallery in Hawaiian Hall. As a beginning a number of herbarium specimens have been mounted to illustrate the principal families and genera composing the indigenous Hawaiian flora. These have been placed in rail cases and wall frames. In most cases the commonest and most widely distributed species have been selected, but in certain instances rare species are shown to illustrate peculiar distribution or other points of interest connected with our flora. The labels have been written for the lay-

man, and point out briefly some of the interesting points connected with the particular plant and its related species; and in some cases this is supplemented with drawings illustrating the flowers when inconspicuous. To other specimens have been added casts of fruit made by Mr. J. W. Thompson. All of the botanical exhibits have been moved from the first to the second gallery in Hawaiian Hall.

"In addition to the short trips on this island, two longer trips were made to other islands of this group. The first was a trip to the island of Molokai as the guest of Mr. G. P. Cooke, the journey being made both ways in this gentleman's private launch. About two weeks were spent on the island, and plants collected from Keomumu to the western end. It was interesting to note the various changes which have taken place in the flora, since the previous visit in 1912. Perhaps one of the most interesting was the spread of two species of introduced *Atriplex*, one on the western end, the other in the kiawe belt near Kaunakakai. Especial thanks are due Mr. Cooke for his many kindnesses and aid to my department.

"The second long trip was to the island of Hawaii, primarily to continue investigations of the plant invasion on lava flows begun several years ago. For economical and other reasons these trips into regions new to me must cover all lines as much as possible; so a large number of plants were collected, and notes taken on the flora as a whole. While outfitting in Hilo, which was my base, several visits were made to surrounding regions, one especially pleasurable one being made with Mr. D. Thaanum, who very kindly explained how to collect land shells in the particular region.

"The terminal portion of the 1880–1881 lava flow is in Hilo, and on account of the much greater rainfall the vegetation on it is much more luxuriant than on the flows of known date on the dry or Kona side of this island. However, I find that the conclusions arrived at after a field study of the Kona flows, hold true in all important essentials for the flows on this side of the island. At the lower elevations on the Hilo side the place of *Polypodium pellucidum* is taken by *Nephrolepis exaltata*. The amount and luxuriance of vegetation is much greater, as was to be expected, plant societies already being established on the flow of 1880–1881.

So many factors have been suggested during the field and laboratory work on these flows, that it is hoped several more trips may be made before writing a general report. Now that I am personally acquainted with this part of Hawaii, an expensive guide will not be necessary, and this can more readily be done. The only way one can find the water holes is to take a guide, but otherwise I have generally found them wasters of time, money and patience.

"From Hilo my route led up through the central part of the island, the trail following the lava flow of 1855. Three camps were made along this trail as follows: Olaa flume, Hale Loulu and Hale Aloha. At the last the trail leaves the flow, and the next place at which a stop was made was the Shipman ranch at Puu Oo, which is on the slopes of Mauna Kea.

"This place made a convenient centre for exploring a very large portion of the highlands within a day's riding distance. From here the lava flows of 1843, 1899 and the upper portion of the 1855 flow were visited; a large portion of the Humuula Sheep Station, to as far east as territory previously covered, was visited; and through the kindness of Mr. W. A. Shipman, who lent horses especially for the trip, Mauna Kea was ascended to the summit. One night was spent at a station called Lau Maia, which is several miles north of Puu Oo. From here the source of the Wailuku River was visited. The rocky ravines had a most interesting flora, one specimen of "Ahinahina" *Argyroxiphium sandwicense*, or Silver Sword as it is called in Maui, measured nine feet in height; the leafy portion being three feet high, the remainder being the flowering panicle in full blossom.

"From Puu Oo the trail was taken across to Kilauea, stops of several days being made at Kipuka Ahiu, near the flow of 1880-1881; Kipuka Waiakea, not far from the flow of 1852; and at Palakea, visiting the flow of 1823 some distance above Keawe Wai; and finally at the Shipman ranch near Kilauea, from which place the 1880–1881 flow on this side of Mauna Loa was visited. The return to Hilo was by the regular route over the Government road. The disappearance of the native forest and the change of landscape along this road has been so great since my only other visit, which was made with Dr. Brigham in 1908, that old landmarks like Mr. Furneaux' house, were passed before being recognized. [145]

"Of the large number of interesting plants observed or collected on this trip, perhaps the most remarkable was *Viola mauiensis* on the slopes of Mauna Loa. This species is known to occur on three of the islands, but always in open bogs or in swampy places; but here it was growing under the shade of Puu Keawe, *Cyathodes Tameiameiæ*, on a dry *aa* flow at about 7000 feet elevation.

"While the flora is very uniform, the scenery along the trail from Hilo to Puu Oo is most unusual. The river of black pahoehoe lava is a garden of small ohia trees, low shrubs, cyperaceæ and coarse ferns, dotted by hundreds of islands a few square yards to several acres in area, which bear dense woods of tall ohia, tree ferns, and other plants, and sometimes large Loulu palms, *Pritchardia* sp., which are often heard before seen, on account of the loud rattle and rubbing of their leaves in the wind. The lava river is bordered by dense virgin forest composed mostly of tall ohia and tree fern. While by no means all of these islands or kipukas could be visited in the time allowed for the trip, as far as observed their flora and fauna are very uniform. Apparently neither time nor isolation has been great enough to produce biological differences in these areas isolated by the lava flow.

"After the return to Hilo, Mr. L. A. Thurston very kindly took me over the Puna section of the Hilo railroad in a power car, allowing me to stop at various places along the route to see the vegetation. The lava flow of 1840 was visited, this being especially interesting as being the first *aa* flow of known date where higher plants are established. This is partly accounted for by the very large rainfall in this section, but this flow will need investigation in other places. This was an unusual eruption in many ways, and there is some indication that much of this slag was old lava borne on top of or mixed with the newer lava. At Kapoho we met Mr. Henry Lyman who took us over other parts of Puna in his automobile, so that I saw a much greater part of this region than I had intended this year.

"As on previous excursions a great deal of kindly help has been received from people whom I have been fortunate in meeting. Especial thanks for help in various ways are due Messrs. L. A. Thurston, W. A. Shipman, Luther Severance and Miss H. Severance, Messrs. C. J. Austin, R. T. Guard, Henry Lyman, D. Thaanum, H. Dent, W. S. Rycroft, A. W. Carter and Walter C. Shields. [146]

"The following list shows the number of specimens received during the year. All except duplicates have been incorporated in the collection.

| | |
|---|---|
| Rev. J. M. Lydgate, Kauai | 2 |
| Mr. G. C. Munro, Lanai | 117 |
| Mr. G. C. Munro, Maui | 40 |
| Dr. C. M. Cooke, Jr., Molokai | 2 |
| Dr. C. M. Cooke, Jr., Oahu | 3 |
| Mr. J. F. G. Stokes, Oahu | 5 |
| Dr. Wm. T. Brigham, Oahu | 2 |
| Mr. C. G. Lloyd (of Cincinnati, Ohio), Hawaii | 1 |
| Curator's collection, Oahu | 377 |
| Curator's collection, Molokai | 329 |
| Curator's collection, Hawaii | 2100 |
| Total number of specimens | 2979 |

**Pulmonata.** From the report of Dr. C. M. Cooke, Jr., I quote:

"For the year 1915 your Curator can report further progress. Many of the 'lots' of fossil shells have been catalogued and not as many new 'lots' have been received. In getting this material sorted and catalogued the Curator has been forced, by lack of time, to place only a small portion of each of the 'lots' in the collection. In some of the deposits the shells are so thickly distributed in the earth that as many as eight hundred whole specimens have been found to be the average in a cubic inch of soil. What has remained (and by far the larger portion of the 'lots') is carefully labeled as to date, locality, and what catalogue numbers have been entered against the 'lot'. It is then stored in the laboratory. Additional specimens may be sorted out at some future date if needed for further study. Undoubtedly from six months to a year's time might be spent in completely sorting and cataloguing all specimens in these fossil 'lots', but most of this time could be spent to more advantage in other ways.

"Forty-one thousand eight hundred and eighty-eight (41,888) specimens were catalogued during the year, being distributed over 2,518 catalogue numbers. The Curator collected 33,807 specimens. Mr. Forbes collected 3,197, and the remainder, 4,884, were gifts from friends of the Museum. Twenty-five thousand one hundred and twelve (25,112), of the specimens might properly be termed fossils.

"Besides short collection trips on Oahu, two visits were made to Molokai during February and March, and one to Maui. Those to Molokai were especially to study the fossil beds along the northern shore of the island and if possible to collect representative series from each of the beds. These occur along almost the whole northern coast line from Puukapele to the extreme northwestern point, a distance of about twelve miles as the crow flies. About two miles of coast line have not been visited up to the present time, and some of the localities will have to be searched over again as the recent heavy rains have undoubtedly uncovered new surfaces of the deposits.

"The trip to Maui was very successful from the collecting standpoint. Of fresh specimens, 7,793 were collected in about three weeks, and in addition 955 fossil shells.

"Three large series of shells came to the Museum from Hawaii during the year, collected by Messrs. Forbes, Thurston and Gouveia.

"A number of the fossil shells have to be specially prepared before they can be studied. Shells that are found in earth are boiled in a solution of Pear's soap and syringed. The result is a clean shell which in numerous instances shows the original color pattern. Specimens found in lime sand and earth deposits have to be carefully cleaned with dental tools before they are fit for study. The labor involved in preparing fit museum specimens of fossil material is usually much more than when the specimens are alive.

"Of the remarkable species turned in during the year I will only mention three or four. Mr. Thurston has discovered a new species of *Amastra* on the island of Hawaii, which is the largest species of this genus recorded from this island. He also obtained two living typical specimens of *Leptachatina tenuicostata* Pse., which, so far as I know, are the only typical living examples of this species taken since it was discovered by Pease.

"Mr. Forbes found a remarkable new species of *Sphyradium* and one of *Kaliella* on the island of Hawaii which are entirely unlike any other species from our islands.

"Mr. Thurston and Mr. Gouveia each found a fragment of a new species of *Amastra*. Both fragments agree rather closely and the species belongs to the group of *Amastra sphærica*. The

species of this group are only known, at present, from the island of Kauai and Maui.

"A remarkable species of fossil *Endodonta* was found by your Curator on the Round Top road. In building the road a small pocket of fossil earth was uncovered by the workmen. This *Endodonta* is the only close relative of the extremely rare *Endodonta stellula* Gld. which is not at present represented in our collection.

"The manuscripts prepared by your Curator for the Manual of Conchology, dealing with *Auriculella*, *Elasmias*, *Tornatillina*, *Tornatillides* and *Tornatillaria*, have nearly all appeared during the year. The Memoir on *Endodonta* has received a good deal of attention during the year, and work on one of the groups has been completed. A shorter paper on new species of *Amastra* which have come to the Museum since Dr. Pilsbry's final publication is in preparation, and as soon as all new species have been catalogued will be finished.

"Mr. W. H. Hoogs, Jr., very kindly gave his collection of Hawaiian land shells to the Museum on November 9th. This collection, numbering about two thousand specimens, contains a number of interesting color forms of some of the Tantalus and near-by colonies. Gifts of shells have been catalogued from the following: Misses J. Kilbourne, A. and L. von Tempsky, A. T. Cooke and C. A Cooke; Messrs A. F. Judd, L. A. Thurston, I. Spalding, A. Gouveia, J. S. Emerson, T. C. White, D. T. Fleming, P. Spalding, C. H. Cooke and G. P. Cooke; Masters D. R. and C. Penhallow, E. von Tempsky, M. Desnouee, H. and C. M. Cooke III."

**The Museum Library.** "The annual reports of the Librarian during the five years since the removal of the Library to the new wing having been lists of accessions only, some details in regard to the nature and progress of the work in this department of the Museum may be of interest.

"*Library Records and Cataloguing.* The records of the Library consist of two accession registers in book form—one for serials, received chiefly by exchange, the other for single books and pamphlets—and an alphabetical or dictionary card catalogue. A card catalogue is kept also of all publications sent to exchanges, and

the returned acknowledgment cards are filed. A set of Concilium Bibliographicum cards for zoology occupies two cabinets, additions coming in from Zurich at irregular intervals. Much time has been given to the Library card catalogue. Although no attempt has been made to rewrite the whole, many new cards have been inserted to replace those which were torn or illegible; guide cards have been prepared, and new accessions as received are furnished with author and subject cards, if needed. Much cross-indexing of important works relating to the Pacific has been and is being done. Some of the subjects chosen for this work are: 'Worship', 'Petroglyphs', 'Volcanoes, Hawaiian Islands', 'Birds, Hawaiian Islands', 'Birds, Australia', 'Russians in Hawaii', 'Burial Customs', 'Tatu'. The value of this work has been felt already and the continuation of it will be of the greatest advantage.

"*Pamphlets.* The classification and care of pamphlets is always a source of difficulty to a librarian. In this Library 'separates' and other papers are classified and placed in pasteboard pamphlet cases labeled with the general subject. A list of contents is pasted on the outside of all boxes containing papers likely to be called for by the members of the staff. By this means a pamphlet is found as easily as a book.

"*Binding.* Besides the repairing of torn pages or broken backs, there may be included here work on old volumes to make the material more available, such as the insertion of a table of contents, or pagination of a volume composed of several parts, each complete in itself. Our set of Pacific Voyages is being furnished with a list of the Pacific islands visited, inserted on the fly-leaf of the volume, and a list of illustrations is being placed in the folios of plates. The set of voyages, arranged in chronological order, has been labeled with author or commander's name, and in some cases also the name of the ship. As many of these old volumes are entitled simply 'Voyage round the World', or have no binder's title whatever, it is necessary to have some means of identification. Labels have been used very freely in all parts of the Library, especially on old books. This work has made the Library of much more value for reference purposes, although much more of a similar nature remains to be done.

"*Incomplete Serials.* Much progress has been made in completing serials published by museums and scientific societies. Ten important sets, each covering a long period of years, have been completed and large additions made to others. One of these, 'Nature', London, 1869 to date, has been completed in 1915; also our set of 'Reports of the Governor of Hawaii to the Secretary of the Interior.' Among the sets recently completed is the 'Transactions of the Royal Society of Australia,' which the Curators of ethnology and entomology have found quite indispensable in connection with work on the Helms collection. Sixteen serials, several of them long ones, now lack from one to five volumes each. If these missing parts are ever obtained, it will probably be one or two at a time from various sources after much search of catalogues and correspondence.

"Some attention has been given to translation, chiefly detached passages from German authors, needed by members of the staff, but also business correspondence in regard to Museum matters. Some longer work, however, has been attempted including a lengthy article by Baessler on the aboriginal sacred enclosures of the Society Islands.

"A number of lists and compilations have been made for library use. For example, from the bibliographies of Jarves, Pease, Martin, Brigham, Griffin and others, of works relating to the Hawaiian Islands, a list has been made of all the Hawaiiana listed by them which it would be desirable to obtain for this Library. A German-English vocabulary of botanical terms with list of abbreviations used has been compiled, typewrttten and bound in amateur fashion for the Herbarium, the carbon copy serving for the Library. A finding list has been made to the set of Pacific Voyages, giving names of authors and commanders, names of the ships by which the voyages are generally known, the date of the voyage, and also the section and shelf where the volumes are to be found. Two lists of duplicates have been made: one of Hawaiiana, the other of general scientific publications.

"An effort has been made to increase the number of exchanges, which in 1910 numbered 113. In response to our letters offering exchange of publications, many appreciative replies and some

very valuable sets of publications have been received, including several complete sets, and several that lacked a few volumes only. Several institutions requesting exchanges have been refused on the ground that their publications were not within the field of the museum work. During 1915 the following have been added to our exchange list: American Fern Society, University of the Philippines, National Academy of Science.

"The total number of names now on the exchange list is 133.

"The total number of accessions in the five years since the removal of the Library is approximately 2000 volumes, and about three times as many pamphlets and parts. There are at present on the shelves approximately 7300 volumes and several times as many pamphlets and parts.

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# List of Accessions.

## ETHNOLOGICAL.

*By Gift.*

Anonymous friend of Henry Holmes, Esq. (B 674-1094)

Basket for corals. Polynesian Islands.

Three boar tusks. South Pacific.

Three shell adzes. Caroline Islands.

Two necklets, three satchels, hat. Gilbert Islands.

Male festival dress, mat. Ellice Islands.

Kawa bowl and kawa. Samoa.

Necklet of yellow shells. Niuë.

Basket. Tonga.

Wooden figure. Easter Island.

Satchel, plaiting bark, wooden ornament, 5 adzes, grave marker. New Zealand.

Six spears, 2 male dresses, 3 belts, 2 carved baobab nuts, gum cement, 2 axes, 5 wooden bowls, 2 wooden dishes, 4 clubs, 3 womera, 8 billetta womera, 4 adze womera, fire-making outfit, 3 message sticks, hank of hair thread, lumbar plume, 3 head plumes, 18 spear heads, 3 feather ornaments, 2 fur ornaments, 3 fur belts, hair cord, 3 head ornaments, 2 nose sticks, 3 hair pins, 3 etchings on bark, 2 bark troughs (Fig. 8), bark sample, 4 specimens of bark fibre, awl, pituri, neekar, mooler, spindle, graver, spinifex gum, 6 shields, 3 breast ornaments (Fig. 11), 13 bull-roarers, basket. Western Australia.

Message stick, tooth necklet, 2 red necklets, knitted bag. Northern Territory.

Hair and fur necklet. Central Australia.

Two clubs, adze club, adze womera, 2 spears. South Australia.

Two parrying shields, yechi, 4 clubs, 6 boomerangs, basket, axe handle, chisel, fire sticks, womera, scraper, 51 mill stones, 10 ceremonial stones (Fig. 10), 34 axes. New South Wales.

Six axes. Queensland.

Three axes. Victoria.

8. BARK TROUGHS. WESTERN AUSTRALIA.

Five axes, pulverized bark, kitchenmidden shells. Australia.

Water carrier, hat, 3 lime boxes, 2 spatulas, combs, 10 cone-shell armlets, 5 fibre armlets, 2 knitted bags, fibre dress, 26 arrows, 4 bows, 3 spears, wooden figure, basket. New Guinea.

Five forehead discs (Fig. 12), basket, 35 shell arm rings. Bismarck Archipelago.

Sixty-five arrows, 5 bows, 2 nose sticks, 10 spears, axe model, canoe model, necklet, 2 armlets, fish-hook, chalk figure, 4 shell and tooth ornaments, 2 adzes, club, spear sheath. Solomon Islands.

Twelve arrows, 4 dancing clubs, basket. Santa Cruz Ids.

Two bows, yam knife, basket, pounder, drum. New Hebrides.

Basket. Canada.

Fly switch. South Africa.

Four swords and daggers with carved ivory sheaths. Japan.

9. WOMERA. QUEENSLAND.

Bruce Cartwright, Jr., Honolulu. (B 1116)

Cannon ball. Oahu.

Geo. P. Cooke, Molokai. (B 520-522)

Grindstone, adze, shell stopper. Molokai.

C. M. Cooke, III, Honolulu. (B 1123)

Ulumaika, polishing stone. Oahu.

Mrs. C. N. Forbes, Honolulu. (B 1102-1105)

Three coral files, ulumaika. Lanai.

Abraham Haili, Hawaii. (B 524)

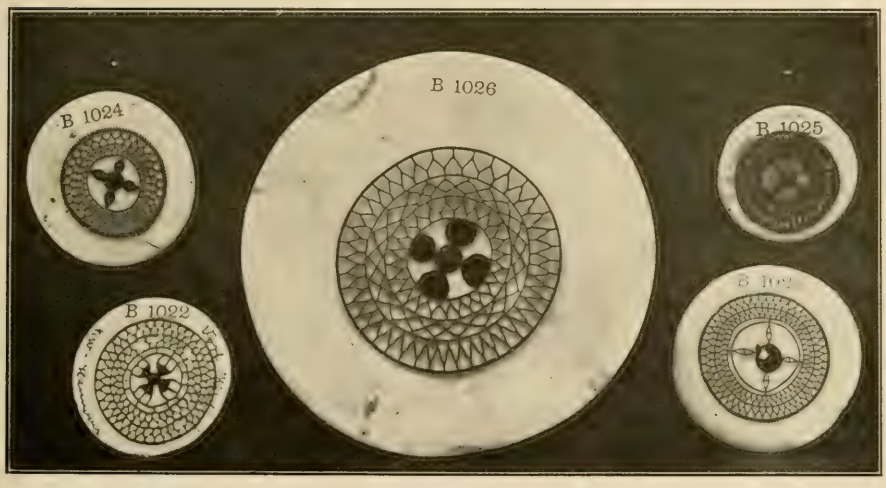
Adze. Hawaii.

F. Muir, Honolulu. (B 468)

Musical instrument. Formosa.

10. CEREMONIAL STONES. NEW SOUTH WALES.

II. BREAST ORNAMENTS. WESTERN AUSTRALIA.




12. FOREHEAD ORNAMENTS. BISMARCK ARCHIPELAGO.

Ben C. Oliviera, Honolulu. (B 1120-1122)
Stone sinker, polishing stone, ulumaika. Hawaii.

H. B. Penhallow, Maui. (B 661)
Stone phallus. Maui.

Sydney Powers, Boston. (B 669-670)
Polishing stone, artefact. Hawaii.

Philip Spalding, Honolulu. (B 1125)
Shell for squid hook. Oahu.

Patrick Walsh, Honolulu. (B 1127)
Stone mortar. Oahu.

Rev. W. D. Westervelt, Honolulu. (B 671)
Mat. Marshall Islands.

G. P. Wilder, Honolulu. (B 467)
Skull. Oahu.

C. Montague Cooke, Jr., Honolulu. (B 466)
Ulumaika. Hawaii.

August Perry, Honolulu. (B 1106)
Ulumaika. Oahu.

*By Collection.*

C. Montague Cooke, Jr. (B 484-519, 523, 525-537, 662, 1126)
Five adzes, 3 hammers, 7 shells for squid hooks, bracelet shell, 22 shell beads, polishing stone, 2 coral files, 8 stone sinkers, 3 ulumaika, 2 shell stoppers, boat spike. Molokai.
Adze, 2 hammers, 7 shells for squid hooks, splitting stone, drill point, 2 ulumaika. Molokai.
Pestle. Maui.
Shell for squid hook. Oahu.

C. N. Forbes. (B 1095-1101)
Six adzes, kitchenmidden shells. Hawaii.

J. F. G. Stokes. (B 651-658, 1107-1115, 1119)
Skeleton, 5 sinkers, sling-stone, 3 shells for squid hooks, 2 grindstones, 5 abrasive implements. Oahu.

*By Purchase.*

Adze chip, 2 sinkers, pounder, 3 ulumaika. Oahu. (B 459-465)
Three sling-stones, noa stone, 4 ulumaika, adze, polisher, shell trumpets. Oahu. (B 472-483)

Adze, 3 ulumaika, 2 sling-stones. Oahu. (B 663-668)
Two ulumaika. Oahu. (B 672-673)
Adze, ulumaika. Oahu. (B 1117, 1118)
Poi board, poi pounder, kukui nut breaker. Hawaiian Ids. (B 469-471)

*By Loan.*

Edgar Henriques, Honolulu. (L 925-967)

Shell coconut scraper, niho palaoa of limestone, oloná board, Niihau mat, awa mortar, 16 koko, hau rope, kahili handle tool, 2 walrus tusks, 3 gourd bowls, Chinese shell trumpet, 4 gourd bottles, fish line gourd, gourd syringe, basket, bambu braid, oloná net, coir net, surf board, shell trumpet, 2 kapa anvils. Hawaiian Islands.

C. H. Dickey, Honolulu. (L 968)

Kapa dress. Hawaiian Islands.

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## OTHER DEPARTMENTS.

*By Collection.*

John F. G. Stokes.

(O 4735-4740, 4741, M 9010-9013, 9016, 9017, 9018-9023, 9024)

Priofinus cuneatus, 4 ♂, 2 ♀; Anas wyvilliana, egg; Epimys sp., 4 ♂, 3 ♀; ditto skeletons; Geograpsis crinipes, ♂ and ♀; Bythynis grandimanus; Palæmon debilis; Lepidodactylus lugubris, 2 specimens; Peropus mutilatus. Oahu.

Sinclair and Stokes.

Ablepharus boutonii, var. poecilopleurus, 5 specimens. Oahu.

C. M. Cooke, Jr. and III.

Lepidodactylus lugubris; Ablepharus boutonii, var. poecilopleurus, 6 specimens. Oahu.

August Perry.

Hemidactylus garnotii. Oahu.

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## ADDITIONS TO THE LIBRARY.

[Received by exchange unless otherwise indicated.]

Adelaide, South Australia.

Royal Society of South Australia. — Transactions and Proceedings, xxxviii. Also, xvi, 3 by purchase.

Royal Geographical Society of Australasia (South Australian Branch).—Proceedings, xv. [159]

AUBURNDALE, MASSACHUSETTS.

American Fern Society.—American Fern Journal, i-iv; v, 1-4.

AUCKLAND, NEW ZEALAND.

Auckland Institute and Museum.—Report, 1914-1915.

BALTIMORE, MARYLAND.

Johns Hopkins University. — University Circular, 1915, 1-8.

BARCELONA, SPAIN.

Real Academia de Ciencias y Artes.—Boletin, iii, 6.—Memorias, xi, 12-23.—Nomina del personal Academico, 1914-1915.

BERKELEY, CALIFORNIA.

University of California. — Publications: American archæology and ethnology, x, title and index; xi, 3, 4.—Botany, v, 6-8; vi, 6-8.—Pathology, ii, 17.—Physiology, iv, 20, 21.—Zoology, xii, 4, 11, 12; xv, 1; xvi, 1.—Chronicle, xvii, 1-4. Also 8 miscellaneous papers.

BERNE, SWITZERLAND.

Bern Historisches Museum.—Jahresbericht, 1914.

BOSTON, MASSACHUSETTS.

American Academy of Arts and Sciences.—Proceedings, 1, title and index; li, 1-6.

Boston Society of Natural History.—Proceedings, xxxv, 2.

Massachusetts Horticultural Society.—Transactions, 1914, part ii; 1915, part i. Given by Dr. Wm. T. Brigham.

Missionary Herald, xvii, xviii, xxii, xxv-xxviii, xxx-xli, xliii, xlv-xlix, li: purchased. Also xxii, xxiii, xxv, l, lvi, lxix, lxxvi: given by Hawaiian Evangelical Association.

Museum of Fine Arts.—Report, 1914.—Bulletin, xiii.

Public Library.—Annual Report, 1914-1915.—Bulletin, viii, 1-3.—Shakespeare Tercentenary, 1616-1916. Boston, 1915.

BOULDER, COLORADO.

University of Colorado. — Bulletin, xiii, 4. Given by the University.

BREMEN, GERMANY.

Naturwissenschaftlicher Verein. — Abhandlungen, xxii, 2; xxiii, 1. Given by the Association.

BRISBANE, QUEENSLAND.

Queensland Museum.—Memoirs, iii.

Royal Society of Queensland.—Proceedings, 1914; index to vols. i-xxv.

BROOKLYN, NEW YORK.

Museum of the Brooklyn Institute of Arts and Sciences.—Science Bulletin, ii, 5.—Brooklyn Museum Quarterly, i, 4; ii, 1, 2.

BUENOS AIRES, ARGENTINE REPUBLIC.

Museo Nacional de Buenos Aires.—Anales, xxvi.—Indices de los tomos, i-xx, 1864-1911.

BUITENZORG, JAVA.

Jardin Botanique. — Bulletin, xvii, xviii. — Catalogus Herbarii..... Batavia, 1914.

CALCUTTA, INDIA.

Indian Museum.—Annual Report, 1913-1914.—Records, viii, 5, 6; ix, title and index; x, 2-6.—Memoirs, iii, 4; iv, title and index.—Echinoderma, viii.

CAMBRIDGE, MASSACHUSETTS.

Harvard University Library.—Annual Report, 1914.—Special Publication, v.

Museum of Comparative Zoology.—Bulletin, lv, 4; lix, 1-8.—Memoirs, xxiv, 1, 3; xl, 9; xlii, text and plates.

Peabody Museum.—Annual Report, 1913-1914.

CAPETOWN, SOUTH AFRICA.

South African Museum.—Annals, ix, 4; xii, 2, 3; xiii, 4; xiv, 1; xv, 1, 2.—Annual Report, 1914.

CHICAGO, ILLINOIS.

Field Museum.—Anthropological Series, vii, title page and index.—Report Series, iv, title page and index.—Publications, 177, 180-185.

CINCINNATI, OHIO.

Cincinnati Museum Association.—Annual Report, 1913, 1914. — Annual Exhibition of American Art, 1915. Given by the Association.

COLOMBO, CEYLON.

Colombo Museum. — Spolia Zeylanica, i-v; ix, parts xxiv-xxxvi, title.

DETROIT, MICHIGAN.

Detroit Museum of Art.—Bulletin, ix, 1-3; x, 1, 3, 4. Given by the Museum.

DRESDEN, GERMANY.

Verein für Erdkunde.—Mitteilungen, ii, 1-4, 6, 10, title; i, title.

DUNEDIN, NEW ZEALAND.

Otago University Museum.—Annual Report, 1914. Given by the Curator.

EDINBURG, SCOTLAND.

Royal Society of Edinburgh.—Proceedings, xxxiv, 3; xxxv, 1 and 2.

FLORENCE, ITALY.

Sociéta Italiana di Antropologia.—Archivio per l'Antropologia e la Etnologia, xliv, 2-4.—Rendiconti delle adunanze, 1914.

GOTHA, GERMANY.

Petermanns Mitteilungen, current numbers. Purchased.

HAMBURG, GERMANY.

Hamburg Kolonialinstitut.—Abhandlungen, xx. Received from the Hamburg Museum für Völkerkunde.

HONOLULU, HAWAII.

Board of Commissioners of Agriculture and Forestry. General Circular, 1.—Annual Report, 1911-1912; 1913-1914.

Crossroads of the Pacific, ii, 36, 39. Given by Dr. Wm. T. Brigham.

Hawaiian Almanac and Annual, 1915, 1916. Given by Mr. Thos. G. Thrum.

Hawaiian Entomological Society.—Proceedings, iii, 1, 2. Given by the Society.

Hawaiian Evangelical Association.—Annual Report, 1915.

Hawaiian Mission Children's Society.—Annual Report, 1915. Given by Albert F. Judd, Esq.

Mid-Pacific Magazine, ix; x; xi, 1.

Oahu College.—Annual Report, 1914-1915.

Paradise of the Pacific, xxviii, 1915. Given by the Editor.

U. S. Agricultural Experiment Station.—Bulletin, 36 (two copies), 37-40.—Press Bulletin, 48-50.

U. S. Weather Bureau.—Climatological Data, Dec., 1913; Dec., 1914; Jan.-Oct., 1915.—Annual Summary, 1913, 1914. Given by the Bureau.

Woman's Board of Missions.—Annual Report, 1913.

LAWRENCE, KANSAS.

University of Kansas.—Science Bulletin, ix.

LANCASTER, PENN.

American Anthropological Association.—American Anthropologist, xvii, 1-3.—Memoirs, ii, 6. Purchased.

LEIDEN, HOLLAND.

Rijks Ethnographisch Museum.—Verslag van den Directeur, 1913-1914.

Internationales Archiv für Ethnographie, General-Register zu Band i-xx (1888-1912). Purchased.

Résultats de l'expédition néerlandaise à la Nouvelle-Guinée.—Nova Guinea, vii, 2; viii, 6; xiii, 1. Purchased.

LEIPZIG, GERMANY.

Deutsche Ornithologische Gesellschaft.—Journal für Ornithologie, current numbers. Purchased.

Museum für Völkerkunde.—Veröffentlichungen, Heft 5.

LIVERPOOL, ENGLAND.

Liverpool School of Tropical Medicine.—Annals, viii, 3, 4, title; ix, 1-3.

LONDON, ENGLAND.

Hakluyt Society.—Publications, 2d series, xiv, xv, xxxii, xxxiii. Purchased.

Royal Anthropological Institute.—Journal, xliv, 2. Also Index to Publications, 1843-1891; and Translations, 1 and 5. Given by the Institute.—Tranlations, 3. Purchased.—Man, current numbers. Purchased.

Royal Colonial Institute.—Proceedings, xii-xxx, 1880-1893. Purchased.

Royal Geographical Society.—Proceedings, ii, iii, 1858-1859. Purchased.

Periodicals by purchase:—

Journal of Botany, current numbers.

Journal of Ecology, current numbers.

Nature, current numbers.

Quarterly Journal of Microscopical Science, current numbers.

MADRAS, INDIA.

Madras Government Museum.—Annual Report, 1914-1915.

MANILA, PHILIPPINE ISLANDS.

Bureau of Science.—Philippine Journal of Science: A (general science), ix, 4-6; x, 1-5. B (medical science), ix, 5, 6; x, 1-4. C (botany), ix, 4-6; x, 1-3. D (general biology and ethnology), ix, 4-6; x, 1-3.

MELBOURNE, VICTORIA.

National Museum.—Memoirs, vi.

Royal Society of Victoria.—Proceedings, xxviii. Also x, 1874, by purchase.

Victorian Review, Nos. 44-46, 1883. Purchased.

MINNEAPOLIS, MINNESOTA.

Book Review Digest, x, 1-5, 7-11. Given by Oahu College Library.

University of Minnesota.—Minnesota Geological Survey Bulletin, 11, 12.—Miscellaneous papers, 8.

NEUCHÂTEL, SWITZERLAND.

Société Neuchâteloise de Géographie.—Bulletin, xxiii, 1914.

NEW HAVEN, CONNECTICUT.

American Journal of Science, 1914, 1915. Purchased.

Connecticut Academy of Arts and Sciences.—Memoirs, iv.—Transactions, xix, pp. 1-110; xx, pp. 1-160.

NEW PLYMOUTH, NEW ZEALAND.

Polynesian Society.—Journal, xxiii, title, index; xxiv, 1, 2.

NEW YORK, NEW YORK.

American Geographical Society.—Bulletin, title, xlvi, index; xlvii. Carnegie Foundation for the Advancement of Teaching.—Annual Report, 1913, 1914. Given by Dr. Wm. T. Brigham.

American Museum of Natural History.—Annual Report, 1914.—Anthropological Papers, xi, 7-10; xii, 2-3; xiii, 2; xv, 1; xvii, 1.—Bulletin, xxiii.—Guide Leaflets, 40-43.—Journal, xv, 1-7.

New York Botanical Garden.—Bulletin, 32.

New York Zoological Society.—Zoologica, i, 19, 20; ii, 1, 2.

Science, xli, xlii. Given by Dr. Wm. T. Brigham.

NORWICH, ENGLAND.

Castle Museum.—Annual Report, 1914. Given by the Museum.

OBERLIN, OHIO.

Wilson Ornithological Club.—Wilson Bulletin, xxvi, 4; title, index; xxvii, 1-3. Given by Oberlin College.

OTTAWA, CANADA.

Geological Survey.—Annual Report, 1913.—Annual Report, Anthropological Division, 1913.—Memoirs, 30, 34, 36, 38 (3 vols.), 46, 56, 57, 59, 61-65, 67-71, 74, 75, 78, 79.—Museum Bulletin, 6, 9-19.

Royal Society of Canada.—Transactions, viii; ix, 1.

PARIS, FRANCE.

École d'Anthropologie.—Revue Anthropologique, xxv, 1-6, 9-11.

Revue Générale de Botanique, current numbers. Purchased.

Société d'Anthropologie.—Bulletins et Mémoires, vi série, iv, 2-6, title, index; v, 1-3. [164]

PHILADELPHIA, PENNSYLVANIA.

Academy of Natural Sciences.—Proceedings, lxvi, 3; lxvii, 1, 2.—Journal, xvi, 2.—Manual of Conchology, current numbers. Purchased.

American Philosophical Society.—Proceedings, 216-219.—Transactions, n. s., xxii, 3.

Philadelphia Museums.—Annual Report, 1914.

University of Pennsylvania Museum.—Anthropological Publications, vi, 2.—Babylonian Section, iv, 1, 2; vii; viii, 1; ix, 1; x, 1.—Journal of the Museum, v, 4, title, index; vi, 1-3.

Wagner Free Institute.—Annual Announcement, 1915-1916.

PITTSBURG, PENNSYLVANIA.

Carnegie Museum.—Annals, ix, 3, 4.—Memoirs, vi, 7.—Annual Report, 1914-1915.—Founder's Day Proceedings, 1915.

PROVIDENCE, RHODE ISLAND.

Roger Williams Park Museum.—Bulletin, v, 4-6; vii, 1-2.

RIO DE JANEIRO, BRAZIL.

L'Instituto Oswaldo Cruz.—Memorias, vi, 3, title, index.

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SUMMARY OF LIBRARY ACCESSIONS FOR 1915.

| | | |
|---|---|---|
| Volumes received by exchange | 108 | |
| Volumes received by purchase | 131 | |
| Volumes received by gift | 15 | 254 |
| Parts and pamphlets received by exchange | 474 | |
| Parts and pamphlets received by purchase | 137 | |
| Parts and pamphlets received by gift | 101 | 712 |
| Total | | 966 |

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Engravings: View of Honolulu about 1858, purchased. Portrait of Kamehameha II (colored lithograph), purchased. Portrait of Kamamalu (colored lithograph), purchased.
Drawing.
Maps: Five purchased, 1 (map of Fiji) given by the Fiji Lands Department.
Photograph: Portrait of Alexander II of Russia. Given by C. Hedeman, Esq. [172]

# New Hawaiian Plants.—V.

CHARLES N. FORBES.

April, 1916.

## **Labordia kaalæ**, sp. nov.

Arbuscula 36 dm. alta; foliis ellipticis vel elliptico-oblongis, basi truncatis, emarginatis vel sub-cordatis, apice acutis, subtus tomentosis, 8.2–12.2 cm. longis, 4.3–5.8 cm. latis, cum petiolis, 1.1–1.5 cm. longis; floribus viridis, paniculato-cymosis, bracteis subulatis; calyce pubescente, lobis lanceolatis, 2–4 mm. longis; corolla glabra, tuba gracili, 9–10 mm. longa, lobulis triangularis, 2–3 mm. longis, ovario pubescenti. Capsula ignota.

Type locality, ridges of Kaala at the head of Mokuleia valley, Oahu. C. N. Forbes, No. 1790, O. April 29, 1912.

A slender tree 36 dm. high, with dark bark. Leaves elliptical to elliptic-oblong in outline, with the base slightly truncate and emarginate or sub-cordate, apex acute, glabrous above, pale below with fine tomentum, 8.2–12.2 cm. long, 4.3–5.8 cm. wide, with petioles 1.1–1.5 cm. long. Flowers greenish, many, 9 to 25, on a distinctly peduncled, pubescent, paniculate cyme, the bractlets subulate. Calyx divided to near the base, the lobes lanceolate, pubescent, 2–4 mm. long. Corolla with a slender tube of about 9–10 mm. in length and triangular lobes of about 2–3 mm. long, glabrous. Anthers projecting beyond the tube. Ovary pubescent. Capsule not seen.

This is most probably closest related to *L. membranacea* Mann, the inflorescence resembling that of *L. tinifolia* Gray.

LABORDIA KAALÆ FORBES.

## **Labordia Lydgateii,** sp. nov.

Frutex vel arbuscula, ramulis pubescentibus; foliis ellipticis vel obovatis, supra glabris, subtus hirsutis, 5.9–7.4 cm. longis, 2.1–2.9 cm. latis, cum petiolis 0–3 mm. longis; cymis 6–21 floris, pilosis, bracteis subulatis; floribus parvis, flavis; calyce lobis lanceolatis, 2 mm. longis, corolla glabra, tuba gracili, 5 mm. longa, lobulis lanceolatis, 2.5–3 mm. longis. Capsula globosa, 4 mm. lata, 2-valvis.

Type locality, Wahiawa drainage basin, Kauai; ridges near the swamp. Rev. J. M. Lydgate, flowering and fruiting specimens, no date. C. N. Forbes, No. 179, K. August, 1909, flowering specimens.

Shrub or small tree with pubescent branchlets. Leaves elliptical to obovate in outline, glabrous above, hirsute below, 5.9–7.4 cm. long, 2.1–2.9 cm. wide, with petiole not over 3 mm. long. The cyme open, slender and pilose, 6–21-flowered. Flowers small, pale yellow. Calyx parted to near the base, the lobes lanceolate, 2 mm. long, a little less than half the length of the corolla tube. Corolla glabrous without, pilose within, the slender tube about 5 mm. long; the slender spreading, lanceolate lobes, about one half that length or slightly longer. Capsule globose, smooth, not winged, 2-valved, 4 mm. in diameter.

This species has smaller fruits than any other species known to me. In general appearance the plant might suggest *L. hirtella* Mann, but the floral characters are essentially different.

LABORDIA LYDGATEII FORBES.

## **Haplostachys Munroii,** sp. nov.

Pilosa; foliis oblongo-cordatis, acutis, crenatis, villosis, 7.7–14 cm. longis, 3.7–9.7 cm. latis, cum petiolis, 4.2–9.3 cm. longis; racemis terminalibus, simpliciis, 2–2.5 dm. longis, floribus oppositis, pedicellis 2 mm. longis; calyce grandi, 1.7 cm. longa, lobis acutis, 3 mm. longis, pubescenti; corolla alba, grandi, pubescenti, tubo 2.2 cm. longo.

Type locality, Paomai, Lanai. G. C. Munro, No. 350. June 16, 1914. Also Koa, Lanai. G. C. Munro, No. 486. February 23, 1916.

Sub-erect, the squarish branches pilose. Leaves oblong-cordate in outline, apex acute, rather coarsely crenate, villose on both faces, rather thin in texture, 7.7–14 cm. long, 3.7–9.7 cm. wide, with villose petioles 4.2–9.3 cm. long. Inflorescence a simple terminal raceme, 2–2.5 dm. long, the flowers opposite on pedicels 2 mm. long, the bracts lanceolate 7 mm. long. Calyx large, obconical or obconic-cylindrical, softly pubescent, with a few scattering longer hairs, 1.7 cm. long, the very short acute teeth 3 mm. long. Corolla large, pure white, the tube slightly curved, 2.2 cm. long; the lower lip 1.6 cm. long, upper lip 8 mm. long, pubescent. Nucules large, slightly glandular at the top, 7 mm. long.

The flowers have a strong aroma, according to Munro. The species is somewhat intermediate between *H. Grayana* Hbd. and *H. truncata* (Gray) Hbd., coming closest to the latter. From *H. truncata* it differs in the acute calycine teeth, and in the larger cordate leaves. The genus has not been reported from Lanai.

HAPLOSTACHYS MUNROII FORBES.

## **Phyllostegia electra,** sp. nov.

Holoseriacea; foliis elleptico-lanceolatis, serratis, acuminatis, basi acutis vel subrotundatis, subtus hispidulis, 6.7–9 cm. longis, 2.5–4.4 cm. latis, cum petiolis 1.3–3.5 cm. longis; racemis terminalibus, simpliciis vel paniculatis, 2 dm. longis, pedicellis 0.6–1 cm. longis; floribus parvis, calyce holoseriacei, tuba 5 mm. longa, lobis lanceolato-linearibus, 2 mm. longis, corolla alba, pubescenti, 9 mm. longa, labiis subæqualibus.

Type locality, Power line trail between Kapaka and Kualapa, Kauai. C. N. Forbes, No. 143, K. August 6–9, 1909.

Sub-erect with holoseriaceous branches. Leaves elliptic-lanceolate, serrate, acuminate, the base acute or slightly rounded, hispidulous or nearly glabrate above, very shortly hispid below, 6.7–9 cm. long, 2.5–4.4 cm. wide, with petiole 1.3–3.5 cm. long. Inflorescence a simple terminal raceme, or with a pair of lateral racemes from the larger foliaceous bracts below. The lanceolate foliaceous bracts decrease in size upward, generally shorter than the pedicels. Flowers in whorls of 4–6 on pedicels 0.6–1 cm. long. Calyx holoseriaceous, the tube 5 mm. long, the teeth linear lanceolate, 2 mm. long. Corolla white, the tube nearly straight pubescent, 9 mm. long, the lips nearly equal, one third the length of the tube.

Separated from other species of *Phyllostegia* by the combination of its characters. The right hand branch of the figured specimens is teratological. The branch is contorted, bent like a knee and thickened on the outside at the flowering node, the inner or opposite pedicels being absent.

PHYLLOSTEGIA ELECTRA FORBES.

## Stenogyne affinis, sp. nov.

Pubescens; foliis ellipticiis vel elleptico-oblongis, obtusis, basi obtusis vel subrotundatis, pubescentibus, crenatis, 1.4–2.4 cm. longis, 0.9–1.2 cm. latis, cum petiolis pubescentibus 0.6–1.1 cm. longis; verticillastris bifloris, pedicellis pubescentibus 3 mm. longis; calyce pubescente, lobis inaequalis 2 mm. longis, tuba 6 mm. longa; corolla pubescente, subviride, annulo integerrimo, lobis superiore falcato longe producto; staminibus exsertis; nucellis 5 mm. longis.

Type locality, Puu Huluhulu, Hawaii. C. N. Forbes, No. 834, H. June 12, 1915.

Diffuse, with sharply angular, finely pubescent branches. Leaves elliptical to elliptic-oblong in outline, obtuse or slightly rounded at the base, crenate, pubescent on both faces, 1.4–2.4 cm. long, 0.9–1.2 cm. wide, with pubescent petioles 0.6–1.1 cm. long. Flowers in whorls of two, on pubescent pedicels 3 mm. long. Calyx pubescent, sub-bilabiate, the obtuse teeth slightly unequal in length, hardly 2 mm. long, the tube 6 mm. long, veins quite distinct. Corolla greenish, tomentose, shaped as in *S. microphylla* Benth., annulus complete or nearly so. Filaments and style long exerted, slightly hairy to glabrous. Nucules 5 mm. long.

This species has about the same relationship to *S. microphylla* Benth., that *S. vagans* Hbd. does to *S. crenata* Gray. From *S. microphylla* it differs most strikingly in its much larger pubescent leaves and laxer habit. Puu Huluhulu is a cinder cone of Mauna Kea which has become isolated by lava flows from the north side of Mauna Loa. [182]

STENOGYNE AFFINIS FORBES.

## Cyanea Juddii sp. nov.

Caule simplici, 12 dm. altus; foliis lato-lanceolatis, membranaceis, integerrimis, subter pubescentibus, 6 dm. longis, 18 cm. latis, cum petiolis aculeis, 2.5 dm. longis; pedunculis 6–9 cm. longis, cum bracteis linearis ab base ad apicem, pedicellis bi-bracteis; floribus magnis, calyce puberulente vel glabrata, lobis linearibus, obtusis, fimbriatis, 9–10 mm. longis, corolla falciformi, extus pubescente 3.2–3.8 cm. longa. Bacca ignota.

Type locality, Pali at the head of Waiahole Valley, Oahu. Only one specimen was seen during a trip in the comany of Messrs. Albert Judd, Dr. C. M. Cooke and others. C. N. Forbes, No. 1744, O. February 6, 1912.

Stem 12 dm. high, without branches. Leaves widely lanceolate, entire, glabrous above, finely pubescent below, especially along the nerves and mid-vein which is also sparingly aculeate, 6 dm. long, 18 cm. wide, with a petiole 2.5 dm. long, sparingly armed with short, stout, yellowish prickles. Peduncles 6–9 cm. long, clothed from the base with linear oblong, obtuse bracts, which are finely fimbriate, 9–16 mm. long, 3 mm. wide, the 5–10 flowers near the apex, the pedicels bi-bracteate near the middle. Calyx sparingly puberulent or glabrous, the tube obconical, 6 mm. long, the lobes linear oblong, obtuse, with the edges finely serrate. Corolla falciform, striped with dark purple and white, densely puberulent but appearing glabrous in dried specimens, glabrous on the inside, with a deep dorsal slit, 3.2–3.8 cm. long. Staminal column glabrous, free. Berry not seen.

I have hesitated for some time in deciding that this is really distinct from *C. tritomantha* Gray, a species only known from the island of Hawaii. It differs in smaller flowers combined with minor characteristics. Both are readily separated from most other *Cyanea* by the densely bracted peduncle, but the Oahu species might be confused with the genus *Rollandia*. It may prove to be closely related to *R. truncata* Rock.

CYANEA IUDDII FORBES.

## **Cyanea profuga,** sp. nov.

Caule simplici, 18–24 dm. altus; foliis late-ellipticiis, acuminatis, basi acutis, undulatis, glabris, 23.4 cm. longis, 9.8 cm. latis, cum petiolis 12.2 cm. longis; pedunculis glabris, 2.8–4.1 cm. longis, pedicellis, 9–10 mm. longis; floribus albis, calyce glabris, tubis cylindricis, 7 mm. longis, lobis oblongis, 5 mm. longis; corollis sub-erectis, glabris, 3.4 cm. longis, columnis staminеis glabris. Bacca ignota.

Type locality, Mapulehu Valley, Molokai. C. N. Forbes, No. 313, Mo. July, 1912. The upper part of Mapulehu Valley was used as a place of refuge in times of war.

Stem simple, 18–24 dm. high. Leaves broadly elliptical, acuminate, acute at the base, undulate, somewhat irregularly so, glabrous, pale whitish below, the petioles rather long, 23.4 cm. long, 9.8 cm. wide, with petiole 12.2 cm. long. Peduncle naked below, glabrous, 9–12-flowered, 2.8–4.1 cm. long, the pedicels 9–10 mm. long. Calyx cylindric-obconical, glabrous, the tube 7 mm. long, the lobes oblong with rounded apex, 5 mm. long. Corolla white, slender, sub-erect, glabrous, with dorsal slit nearly to the base, 3.4 cm. long. Staminal column and anthers glabrous. Berry not seen.

The habit of the plant and the leaves bear a striking resemblance to *C. acuminata* (Cham.) Hbd., but otherwise the plant is very different. Another plant, Forbes, No. 240, Mo., collected on the Pelekunu trail on the same island, is probably the same species; but not having flowers or fruit this cannot be definitely decided at present. [186]

CYANEA PROFUGA FORBES.

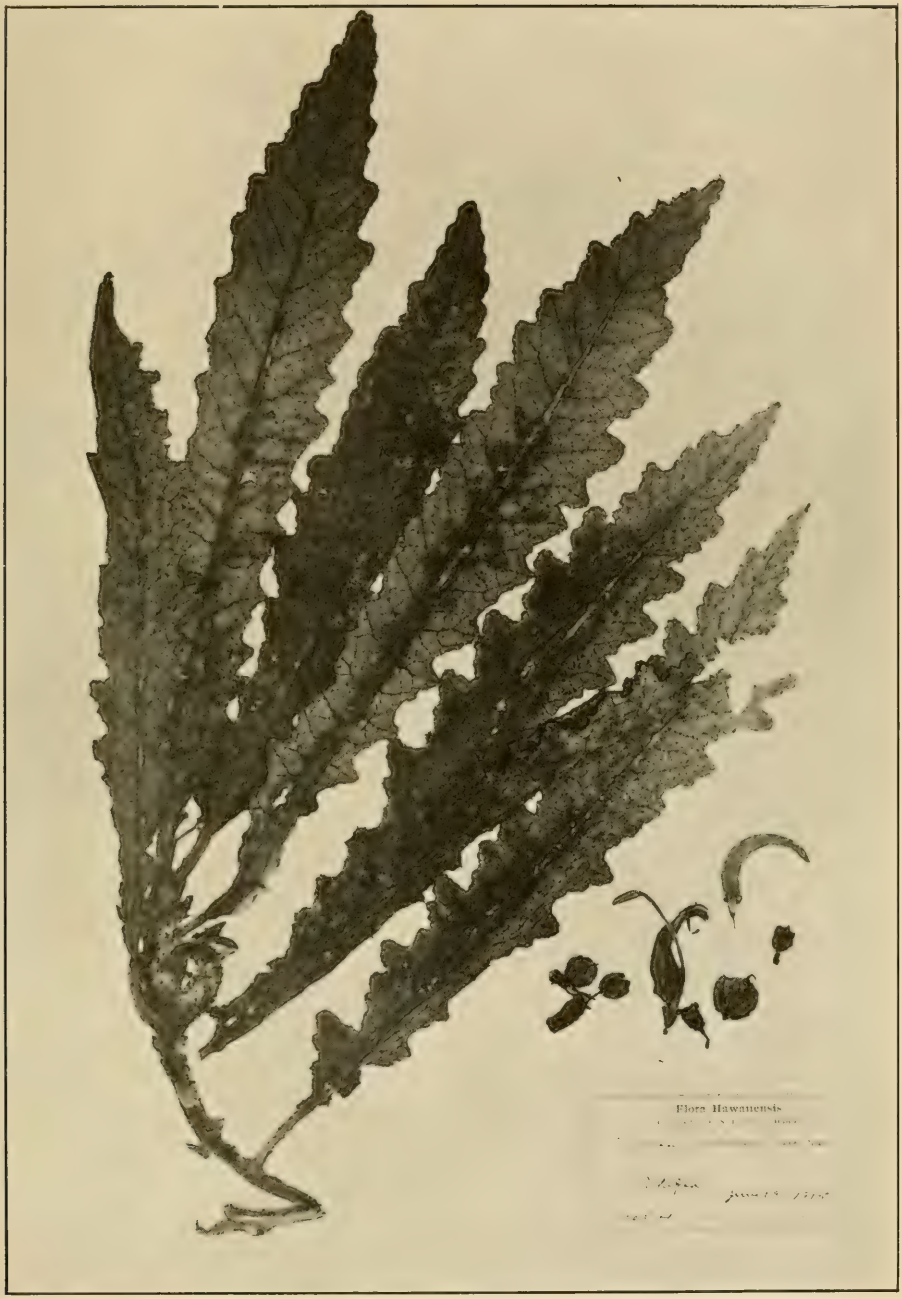
## **Cyanea palakea,** sp. nov.

Caule fruticosa; foliis spathulato-lanceolatis, sinuatis, acutis, aculeatis, subtus pubescentibus, 23.8–28.1 cm. longis, 3.7–5.1 cm. latis, cum petiolis 2–2.9 cm. longis; pedunculis 1.2–1.5 cm. longis, pedicellis 7–8 mm. longis; calyce glabra, tubo 5–6 mm. longo, lobis acutis 3–3.5 mm. longis; corolla alba, falciforma, glabra, 3.6 cm. longa; columna staminea glabra; bacca globosa, luteola, seminibus rubris.

Type locality, dense forest east of Palakea, about 10 miles north of Kilauea, Hawaii. C. N. Forbes, No. 1003, H. June 29, 1915.

Stem 6–9 dm. high, sparingly branching, armed with stout yellow or orange-colored spines, epiphyte on trees. Leaves spathulate-lanceolate in outline, sinuate, acute, contracting toward the base, glabrous above but more or less armed with stout yellow spines, pubescent below, especially along the rather prominent veins, and spiney, 23.8–28.1 cm. long, 3.7–5.1 cm. wide, with petiole 2–2.9 cm. long. Peduncle short, smooth, rather stout, 1.5–1.2 cm. long, the pedicels 7–8 mm. long. Calyx obconical, glabrous, the tube 5–6 mm. long, the teeth narrow acute, 3–3.5 mm. long. Corolla white, nearly glabrous, sparcely puberulent under a lens, falciform, 3.6 cm. long. Staminal column and anthers glabrous. Berry globose, orange-colored, rather flat-topped. Seeds crustaceous, smooth, reddish.

This species seems to be most closely related to *C. platyphylla* Hbd., from which it differs in habit and leaves. While only seen in this locality, it may be expected in other places in these dense woods which have not been thoroughly botanized.




CYANEA PALAKEA FORBES.

**Lysimachia filifolia** Forbes & Lydgate, sp. nov.

Fruticosa, glabrata, ramosa; foliis filiformis, 2.5–4.3 cm. longis, glabris; pedunculis unifloris, glabris, 1.8 cm. longis; floribus 5-meris; sepalis lanceolatis, 5 mm. longis, corolla sub-rotata, lobis late obovatis, purpureis, 1 cm. longis, filamentis basi dilatis; capsula crustacea, ovata, 5 mm. longa, 3.5 mm. lata, 5 valvis dehiscens.

Type locality, upper portion of Olokele Valley, Kauai. Rev. J. M. Lydgate. January, 1912.

Small glabrous shrub with reddish stems. Leaves filiform, glabrous, 1-nerved, 3–4.3 cm. long. Peduncles one-flowered, glabrous, 1.8 cm. long in the flowering stage, 4.3–5.4 cm. long in the fruiting stage, inclined to droop. Flowers 5-merous. Sepals narrow lanceolate, 5 mm. long. Corolla sub-rotate, reddish purple, the lobes widely obovate, 1 cm. high. Stamens a little shorter than the corolla, filaments dilated at the base. Capsule ovoid, crustaceous, smooth, shiny within, 5-valved, 5 mm. long, 3.5 mm. wide. Seeds minute, numerous.

This species belongs to the group of *L. Hillebrandii* Hook. and of *L. Remyi* Hbd., two species which run into each other with a number of connecting forms. The present species differs essentially in the extreme form of the leaves. The sepals are much narrower than in these species, and the capsule is smaller. We have seen no specimens with leaves intermediate between this and *L. Remyi*. [190]

LYSIMACHIA FILIFOLIA FORBES & LYDGATE.

# PUBLICATIONS

OF THE

# Bernice Pauahi Bishop Museum

## Honolulu, Hawaii, U. S. A.

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### MEMOIRS.

(Quarto.)

Vol. I.—Nos. 1-5. 1899-1903.

Vol. II.—Nos. 1-4. 1906-1909.

Vol. III.—Ka Hana Kapa: The Making of Bark-cloth in Hawaii. By Wm. T. Brigham. 1911. Complete volume.

Vol. IV.—Fornander Collection of Hawaiian Antiquities and Folk-lore. Gathered by Abraham Fornander. With Translations Revised and Illustrated with Notes by Thomas G. Thrum. Part I. 1916. [Part II in press.]

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### OCCASIONAL PAPERS.

(Octavo.)

Vol. I.—Nos. 1-5. 1898-1902. [No. 1 out of print.]

Vol. II.—Nos. 1-5. 1903-1907.

Vol. III.—Nos. 1, 2. 1907-. [Volume incomplete.]

Vol. IV.—Nos. 1-5. 1906-1911.

Vol. V.—No. 1. New Hawaiian Plants, III. By Charles N. Forbes.—Preliminary Observations Concerning the Plant Invasion on Some Lava Flows of Mauna Loa, Hawaii. By Charles N. Forbes. 1912.

No. 2. Director's Report for 1911.—The New Laboratory.—Another Curved Adze. By Wm. T. Brigham. 1912.

No. 3. Notes on the Flora of Kahoolawe and Molokini. By Charles N. Forbes.—An Enumeration of Niihau Plants. By Charles N. Forbes. 1913.

No. 4. Director's Report for 1912. 1913.

No. 5. Director's Report of a Journey Around the World to Study Matters Relating to Museums. 1912. With index to volume.

Vol. VI.—No. 1. Director's Report for 1913.—New Hawaiian Plants, IV. By Charles N. Forbes. 1913.

No. 2. Director's Report for 1914. New Hawaiian Plants, V. By Charles N. Forbes. 1915.

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A Handbook for the Bishop Museum. 1903. [Out of print.]

Bishop Museum Handbook.—Part I: The Hawaiian Collections. 1915. Octavo.—Part II: Hawaiian Fishes. (In preparation.)

Index to Abraham Fornander's "An Account of the Polynesian Race." By John F. G. Stokes. 1909. Octavo.

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# OCCASIONAL PAPERS

OF THE

# BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI—NO. 4

# Director's Report for 1916

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Smithsonian Institution
JUN 18 1917
National Museum

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1917

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OCCASIONAL PAPERS

OF THE

BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI — NO. 4

# Director's Report for 1916

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1917

*Report presented February 10, 1917.*

*Returned approved April 20, 1917.*

# Director's Report for 1916

In beginning his Report of the activities of this Museum for the year 1916 the Director, with no little pleasure, notes an event which was, he believes, intended to have taken place in the previous year as a recognition of the twenty-fifth year of the Museum's concrete existence, 1890–1915. Various accidents delayed the kind intention and hence its place in the present Report. The event is explained in the following letter from the Trustees' Records:

"On motion of Mr. W. O. Smith, it was unanimously resolved that the offer to the Museum by the persons who are at present Trustees, of the portrait in oils of Dr. William T. Brigham by Wilton Lockwood, be accepted and that the Secretary be instructed to send to the donors the letter of which the following is a copy:

" 'The Bernice P. Bishop Museum accepts the gift made to it by you of the portrait of Dr. Brigham painted by the late Wilton Lockwood, and will be pleased to give it a place in the Picture Gallery of the Museum.

" 'Dr. Brigham, as the first Curator and Director of the Museum, is one who might be said to have been present at its birth, who had performed a very large share of the work of directing its course from the stage when it was the treasure house of two private collections of ancient Hawaiian handicraft to the Bernice P. Bishop Museum of today. Dr. Brigham and his work can never be dissociated from the Museum, its humble beginnings, its early difficulties and struggles, its progress and development, and the work it has already accomplished in the cause of science.

" 'By this action of the Trustees a work of Art has been added to the rich collections which are stored in the Museum, and so long as the impressive monument of love known as the Bernice P.

Bishop Museum endures, can be seen the well-drawn lineaments of the man whose scholarship, learning, knowledge, rare taste, judgment, and love of science largely furnished the ideas, directed the work and guided its destinies.

"'Gentlemen, the Museum thanks you for your timely and appropriate gift, and assures you that it will be prized and cherished.'"

PORTRAIT BY WILTON LOCKWOOD
OF
WILLIAM T. BRIGHAM, A. M., SC. D.

FIRST CURATOR (1890) AND FIRST DIRECTOR (1896)
OF THIS MUSEUM

GIVEN TO THE MUSEUM BY

HON. SAMUEL M. DAMON HENRY HOLMES WILLIAM O. SMITH
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TRUSTEES OF THE MUSEUM, 1916

[*Label on the Portrait*]

**Ethnology.** Continuing the agreeable subject of gifts to the Museum I call attention to the report of the Curator of Ethnology, Mr. John F. G. Stokes. He says:

"Mr. Holmes' anonymous friend has again given evidence of his generosity in purchasing and presenting two collections to the Museum. The larger one, made by J. F. Connelly in Australia, is mainly of interest through its painted bark baskets, memorial stones, and *nardoo* grinders which supplement the more extensive Helms collection given by the same benefactor in 1915. The second, of Maori implements sent by L. Simmons on approval, was small but very choice, as it included a *mere*, *tiki* and fish-hook, all in jade.

"Another gift was the feather cape of the Parker family, which came to the Museum without suggestion by members of the staff. It was a family heirloom and its presentation caused a feeling of satisfaction that the usefulness of the Museum was being more widely appreciated. The gift was from the five living heirs of Harriet Panana Hianaloli, first wife of Col. Samuel K. Parker, and the presentation was made through Mr. Ernest Napela Parker.[1]

[1] An illustration of this interesting cape, of which the ownership is recorded for several generations, will be given in another supplement to Hawaiian Feather Work which is in preparation.

"It is worth while noting the occasional advantage to the Museum of helping outsiders when possible. Captain Fritz Hellhoff, of the S. S. Longmoon and Mr. Max Frech, first officer of the S. S. Prinz Waldemar, both now in port, wished to have a consignment of bird of paradise skins inspected for condition before shipment to China for sale. Compliance with their wishes led to the presentation to the Museum by Mr. Frech of necklaces of beetles' prothoraces, elytra and femora from Kaiserin Augusta River, New Guinea, specimens not before heard of. Shown in Fig. 3. Promises were also made by the two officers to send specimens to the Museum when they regained their freedom. The bird of paradise skins were intended only for millinery purposes, and were unsuitable for the Museum collections.

"Messrs. A. F. Judd, J. A. Wilder, G. P. Cooke and C. M. Cooke Jr., added many specimens from Molokai, among which were three shell spoons not previously reported. Fig. 1.

"Mr. J. K. Farley sent us a petroglyph which he had had cut from the beach at Keoneloa, Kauai, with the permission of the Koloa Sugar Company, on whose property the specimen was.

"Among the other gifts might be mentioned two rare pounders from Mr. H. Digby Sloggett, a *papa kui poi pohaku* or stone platter on which poi was pounded (unique so far), from Mr. A. Gross (Fig. 8), and a ringed stone mortar from Mr. Robert S. Thurston (Fig. 4). The gifts of other friends of the Museum appear in the accompanying lists. It will be noticed that there is an increase in the number of donors."

The field work of the department has been not only interesting but productive. The expedition to Kauai was the third in the past six years with the object of photographing the interesting petroglyphs on Keoneloa beach. The first two were comparative failures for the sand which usually covers the cuttings which are uncovered during a Kona storm, in both cases were mostly covered by the time one could get word of the storm and arrive from Oahu at the beach. In January of this year there was a long spell of Kona weather and the sands left the petroglyphs uncovered for an unusual time, so that Mr. Stokes with Mr. Dean H. Lake and a specially constructed staging to place in the water where the camera could catch the bare ledge as the wave receded were able to secure

a good series of photographs from which the figures have been traced on a large sheet of paper in their relative position for later publication. A few ethnological specimens were gathered from the neighboring sand dunes. Certainly the Museum is much indebted to Mr. J. K. Farley of Koloa for his valuable assistance in this matter, and for his hospitality, as it is through his watchfulness of the beach and weather conditions that the success of the work was made possible.

In an unusual way this department went afield, and from Mr. Stokes' report the visit to the Maui County Fair was a wise departure from the usual Museum routine. The report was presented to the Trustees December 20th, but for purpose of record and for its intrinsic interest is repeated here:—

DR. W. T. BRIGHAM,

Director Bernice P. Bishop Museum.

SIR:—I beg to submit a brief report on the subject of Mr. Lambert's and my recent visit to Maui. In response to the invitation to you, from the Maui County Committee, to judge the Hawaiian Arts and Crafts section, you deputed me to take your place and Mr. R. E. Lambert to lend his assistance. Mr. George P. Cooke, who was interested in the Fair had suggested that we exhibit a collection of our ethnological casts, and forty-six of our rarest specimens were represented at the Fair in this manner. There being present at the exhibition abundance of the commoner specimens, our exhibit had the effect of adding leaven to the whole. A set of the Museum Memoirs was made available to the visitors at the Fair, and they appeared to appreciate the opportunity of looking through the same.

There were over 500 local specimens on display, and the attendance at the Arts and Crafts section was estimated at 2400. I believe that 1800 would be a conservative estimate. The interest of the visitors in what they saw was very great, and many questions were asked by them. A large portion of the visitors were Hawaiians, and it was remarkable to observe that many of them had forgotten the commoner implements of their ancestors. This became apparent from the questions they were overheard asking one another. So great was the interest created by the Hawaiian Arts and Crafts section, that its Committee was requested to con-

tinue its exhibition for two days after the rest of the Fair was closed, which was done. Before closing the exhibition, I was invited to make a short address on the subject of the Bishop Museum, and endeavored to satisfy the visitors.[1]

On account of the interest shown by the Maui people and their visitors in this section of the Fair, I was greatly impressed with the desirability of the Museum again cooperating in a similar but more extensive manner with other exhibitions of the kind. There are many people who cannot visit the Bishop Museum. By having on hand a large series of casts of our suitable rare stone and wooden specimens packed in, perhaps half a dozen, padded compartments shipping cases, each compartment numbered for its particular specimen, we will be equipped to do this work at a day's notice. The use of such cases, inexpensive for our carpenter to prepare, will obviate any ordinary risk of breaking and losing casts, and enable them to be used with a minimum loss of time in packing and unpacking. The more delicate specimens, such as feathers, tapa, etc., can be shown through the Memoirs to be included in this traveling exhibition set.[2]

Of the three weeks spent on Maui, nine days of my time were taken up by the Fair, which occupied the whole of Mr. Lambert's five days there. As the committee for the section was totally unfamiliar with the handling and exhibition of specimens, I thought it might be within my province to outline a simple system to aid them. It was pleasant to observe the readiness with which my suggestions were adopted, and some satisfaction to learn at the close that not one of the exhibitors had lost a specimen.

Mr. Lambert worked hard and continuously, and by his efforts contributed very materially to the success of the exhibition. He also helped in interviewing owners of specimens, and in furthering a kindly feeling towards the Museum.....

The Arts and Crafts Committee agreed to my suggestion that casts of specimens be allowed in future competitions, in cases where owners formerly possessed the original specimen. This plan permits a museum to permanently preserve a rare form, while the original owner retains the same privilege of exhibition as he exercised before. Without such an understanding, people who gave specimens to the Museum would be thereby handicapped in later competitions.

[1] That this was admirably done I have sufficient testimony from several of those present.—Note by Director.

[2] The Trustees have since voted to have this excellent suggestion carried out.

In the days following the Fair, the Memoirs of the Museum were placed at the disposal of the public in the Maui Hotel lobby, and at the office of the Rev. R. B. Dodge, Chairman of the Arts and Crafts Committee. The rest of my time was used up in gathering information concerning the heiau and introducing the Bishop Museum to many Hawaiians who had not heard of it. For the latter purpose I carried a copy of the handbook in my pocket, and keen interest was displayed by the Hawaiians who looked it through.

In the heiau work, using Wailuku as a base, I covered the coast as far as Kahakuloa on the N. W., Keanae on the N. E., La Pérouse Bay on S. E. and Olowalu on S. W. For the Lahaina and Kaanapali sections, Lahaina may be used as a base later. The heiau work was disappointing. I had hoped to get a better understanding of the heiau terms used by the late S. M. Kamakau in his writings from the natives of the Wailuku section, where Kamakau lived many years. The terms, however, were unknown to these people, as were most of the commoner heiau terms. Over twenty-five heiau sites were seen and fifteen more heard of. Of the few where stones remained, not one was in condition to afford an original ground plan such as I required.

These little journeys, however, were the means of securing twelve good specimens, of which two were given, one purchased, and four found by my wife who accompanied me. Deserted house lots were the best source of supply. Expenses have been kept at a minimum through the use of my own machine which I had with me.

Respectfully submitted,

JOHN F. G. STOKES,
Curator of Polynesian Ethnology.

To Mr. Stokes' interesting account of his Maui visit I am pleased to add the following communication from the well-known Chairman of the Arts and Crafts division of the Fair:

Wailuku, December 25, 1916.

DR. WILLIAM T. BRIGHAM,
Director Bishop Museum, Honolulu.

DEAR DR. BRIGHAM:—The Committee in charge of the Hawaiian Arts and Crafts Department of the County Fair wish me in their behalf to most heartily express the thanks of the Committee and the entire Board of the County Fair for the most generous assist-

ance given us by the Museum in the loan of the valuable collection of casts and the most generous and helpful assistance of Mr. Stokes and Mr. Lambert. These gentlemen who represented you, and Mrs. Stokes who gave so freely of her time, inspired the best possible work on the part of our Committee, and brought to Maui's careful attention the excellent work of your most valuable Museum. I feel that your enthusiastic support of the project on Maui, which you know is our first attempt, will materially assist in subsequent fairs whether held here or on the other islands. The Museum cannot be thanked enough, and you, kind sir, for the pains taken to so materially assist in Maui's First County Fair.

In behalf of the Committee of Hawaiian Arts and Crafts,
I remain most gratefully yours,
ROWLAND B. DODGE, Chairman.

**Botany.** From the Report of the Curator of Botany, Mr. Charles N. Forbes, I quote from his field work:

"During the latter part of May I made an excursion to Hawaii to observe the effects of a lava flow on vegetation. In order to obtain quick transportation from Hilo to the source of the flow I accepted the invitation of Dr. C. D. Barnes to join his automobile party. While an unforeseen illness prevented a thorough exploration I was enabled to see much which helps to explain conditions observed on many old flows. I was able to visit a branch of the flow in Kahuku while it was still hot, although movement had ceased, and to see the actual source of the flow which was in great activity.

"The effect of heat on the lee side of the aa flow visited was most interesting. Where the lava overhung dry grass, as it did in many places along the flow, the grass was only scorched the amount of the overhang away from the flow, which was only six inches in many places. Detached pieces of lava which fell off and away from the flow simply burned a small circle about themselves. Branches of trees actually overhanging the flow were usually but not always withered; while otherwise the tree remained unharmed. In one place an ohia (*Metrosideros polymorpha*) tree in full bloom was nearly surrounded by a wall of lava without its foliage being even wilted. Near the end of this flow a large prostrated koa tree (*Acacia koa*) had been carried a short distance without its foliage

being completely scorched. Looking across the flow the scorching of foliage on the lee side did not appear to be very much greater than on the windward side. Practically all vegetation on the windward side of the flow at a distance of two feet and often less survived. Minor effects on vegetation were the plowing up of sods by great angular blocks of rock pushed forward by the flow; and the effect of either steam or gases escaping through underground passages along the edge of the flow, which in one case observed caused the destruction of a large koa tree at a considerable distance away from the lava stream. It is hardly necessary to mention that all vegetation in the course of flowing lava was annihilated. I observed nothing which suggested the effect of poisonous gases, withering being caused by heat, as was indicated by the relative position of scorched and green foliage. Weather conditions during the period of the flow were not particularly favorable for the development of forest fires, and I was not able to ascertain if any took place.

"Along a crack extending from the source of the eruption, which is above Puu o Keokeo, toward the summit of Mauna Loa, I observed blighting of vegetation which I believe was caused by the emission of poisonous gases. While not impossible that this was caused by frost, the relative appearance of the damage done to different bushes bore a decided relation to the distance from the crack. At an estimated distance of three hundred feet on the lee side of this crack bushes of *Dodonaea viscosa* had blighted leaves; while closer in leaves of *Vaccinium penduliflorum* and *Coprosma ernodeoides* were blighted. The foliage of *Cyathodes Tameiameiae* which is needle-like was not affected, but buds of plants rather close to the crack were blighted. In all cases the blighting was slight and the plants probably quickly recovered.

"At the source of the eruption there is a small area of *pahoehoe* lava; many of the characteristic cracks of this fresh lava had a whitish discoloration or an otherwise different appearance in color from the rest of the lava, due to the action of escaping gases on the rock surface. This fact is especially mentioned here because it probably bears an important relation to the future invasion of plants. The chemical nature of the surface of the cracks must be somewhat different from the surface rock of either *pahoehoe* or *aa*. I have noticed this surface discoloration in the cracks of all old *pahoehoe* flows, but was never quite sure whether it was purely

a primitive condition or partly an after effect or weathering, perhaps due to rain falling on the cooling lava.

"On the south point of Hawaii there are now four flows of known date in close proximity, even overlapping in places, namely 1868, 1887, 1907 and 1916. The invasion of plants on these areas of brand new earth are of immense interest to a botanist; there being few places in the world where such phenomena can be readily observed.

"During October and a part of November a collecting trip was made to Kauai. With Lihue as a base, camping trips were taken to Kilauea, Nonou Mountains, Hii Mountains, and day trips to the Haupu Range, Wailua Falls and other places in the immediate vicinity. In spite of rainy weather a fair collection of plants was made.

"I was enabled to confirm certain statements made to me by Rev. J. M. Lydgate concerning *Brighamia insignis* as it occurs on Kauai. The Kauai plant has different colored flowers from the plant occuring on the central islands of the group, but otherwise there seems to be no constant or striking differences of specific or varietal rank, although it may be safe to give the Kauai plant the form name of *citrina*.[1]

"Probably Remy's Niihau specimens cited by both Gray and Hillebrand belong to this form. I have observed *Brighamia* along the Kalalau trail on Kauai but not in flower. So far the genus has not been reported from either Oahu or Hawaii, but it would not be safe to say that it does not occur. A difference between the plant of the central islands of the group and that of Kauai is of rather more than passing interest.

"During the year Mr. A. S. Hitchcock of the Bureau of Plant Industry, Washington, D. C., an expert on grasses, visited our Herbariam and looked through the specimens. Both his friendship and identifications in this difficult group were a welcome help. An exchange has been arranged with Mr. Hitchcock.

[1] *Brighamia insignis forma citrina* forma nova, Forbes and Lydgate. Differs in the lemon yellow corolla, brighter yellow on the inner side of the expanded lobes; in contrast to the creamy or white corolla of the type. The expanded lobes are acute rather than acuminate, and the calyx teeth are shorter, but these are not constant differential characters. Leaves as in the species. Type locality, Haupu Range near Nawiliwili Bay, Kauai. Forbes, No. 706, K., Oct. 31, 1916.

"During the year the following persons have aided us in various ways: Messrs. T. C. White, Allan Wall, Robt. McWayne, G. C. Munro, J. R. Myers and Rev. J. M. Lydgate."

ADDITIONS TO THE HERBARIUM.

| | |
|---|---|
| Dr. T. F. Cheeseman, New Zealand. (Exchange) | 145 |
| R. S. Williams, New York. Oahu | 2 |
| Mary Strong Clemens, Philippine Ids | 40 |
| G. C. Munro, Lanai, Molokai and Maui | 92 |
| Mrs. G. E. Kelly, Hawaii | 1 |
| J. F. G. Stokes, Oahu and Maui | 8 |
| Dr. C. M. Cooke, Jr., Oahu | 9 |
| J. C. Bridwell, Oahu | 1 |
| Curator's collection, Oahu | 359 |
| Curator's collection, Hawaii | 6 |
| Curator's collection, Kauai | 900 |
| Total | 1563 |

**Pulmonata.** From the Report of the Curator of Pulmonata, Dr. C. Montague Cooke, Jr., we find:

"Twenty thousand two hundred and ten (20,210) specimens have been catalogued during the year. These were distributed over 1760 catalogue numbers, with an average of slightly over eleven specimens to each catalogue number. Besides the shells catalogued, several thousand specimens were either collected or given to the Museum during the year which your Curator was unable to catalogue.

"Not as much has been done in the field this year as in previous years, but more time has been spent in the laboratory on the collections. One important trip was taken with Messrs. Judd and Wilder to Molokai and collections made on the different ridges between Waikolu and Kawela. Previous to this trip, very few specimens were in our collection from this region and the results were very satisfactory, as 2444 specimens were added to our collection.

"A paper dealing with some new species and varieties of *Amastra* is in the hands of the Trustees, and it is to be hoped that it will be issued early in 1917.[1] A number of very interesting species have been dealt with in this paper. Most of the forms described were acquired by the Museum since Dr. Pilsbry's visit here in 1913. Work has already been begun in arranging the material for study for another paper.

[1] This paper has been issued as Part 3 of Vol. III, Occasional Papers.

"Your Curator wishes to thank the following persons for their gifts during the past year: Dr. H. A. Pilsbry, Messrs. L. A. Thurston, D. Thaanum, I. Spalding, J. M. Ostergaard, A. F. Judd, A. and J. Gouviea, R. and W. Mist, F. Girdler, Master Charles M. Cooke, III, and Miss Caroline A. Cooke."

**Entomology.** In the Entomological Department Mr. J. C. Bridwell somewhat late in the autumn was appointed Assistant to Mr. O. H. Swezey, Honorary Curator of the department, to aid in the arrangement of the Helms collection, but unfortunately an accident disabled him so that little was accomplished except the ordering of necessary implements and supplies: with the new year it is hoped that much good work will be done.

REPORT OF THE HONORARY CURATOR.

THE DIRECTOR,

Bernice P. Bishop Museum, Honolulu.

DEAR SIR:—The work in Entomology at the Museum for the calendar year1 916 was chiefly with the extensive Helms collection of Australian insects acquired the previous year. The work of cleaning, repinning, and repairing specimens, preliminary to transfering them to the Museum cabinets, was continued as rapidly as possible in the limited time at the disposal of your Honorary Curator. At length it was found that this would be too great a task and would be prolonged indefinitely and prevent any progress in work with the collection of Hawaiian insects for quite a time unless assistance was arranged for.

The Museum was fortunate enough to secure the services of J. C. Bridwell for this purpose, he having gained a considerable familiarity with the Australian insect fauna by several months in Queensland and New South Wales, both in studying collections in museums and in collecting in the field. Unfortunately his appointment began so late as September 1, and yet more unfortunately he was soon laid up in the hospital for several weeks with blood poisoning in one leg, from a wound by a date-thorn in the knee. Further delay was occasioned by the tardy arrival of material for lining the insect cabinet drawers, but eventually the work was gotten well under way and substantial progress made in the transference of the collection to the Museum cabinets. It is ex-

pected that this will be finished during 1917, though there will yet remain a great deal to be done before the systematic arrangement of the collection is completed and all specimens determined and labeled. The undetermined and unlabeled material in the collection is a greater proportion than was apparent at the beginning, and will provide opportunities for a great deal of further work, but it is not urgent that it be done at once.

The Hawaiian collection has partly been installed in the cabinets, and more will be done with this during 1917. Collecting of new material will also be done at opportune times to augment this collection, special efforts being made to secure specimens of the numerous species now lacking.

Your Honorary Curator has deposited in the Museum his set of "types" of forty-one (41) species of Lepidoptera. These are all of species described by him in recent years, and not hitherto represented in the Museum collection. Herewith is a list of the species together with references to their descriptions. Those marked with an asterisk (*) have "paratypes" in the author's collection; those marked with a double asterisk (**) have "paratypes" in the cabinets at the Hawaiian Sugar Planters' Association Experiment Station.

*Nesamiptis newelli.* Proceedings of the Hawaiian Entomological Society, II, 5, p. 270, 1913.
*Nesamiptis laysanensis.* Op. cit., III, 1, p. 18, 1914.
*Plusia giffardi.*** Op. cit., II, 5, p. 270, 1913.
*Hydriomena giffardi.* Op. cit., II, 5, p. 271, 1913.
*Hydriomena roseata.*** Op. cit., II, 5, p. 271, 1913.
*Genophantis leahi.** Op. cit., II, 3, p. 103, 1910.
*Cryptoblabes aliena.*** Bull. Ent. Experiment Sta., H. S. P. A., 6, p. 24, 1909.
*Omiodes meyricki.** Op. cit., 5, p. 24, 1907.
*Omiodes musicola.** Proc. Haw. Ent. Soc., II, 2, p. 40, 1909.
*Omiodes maia.** Op. cit., II, 2, p. 74, 1909.
*Omiodes anastreptoides.** Op. cit., II, 5, p. 272, 1913.
*Omiodes fullawayi.* Op. cit., II, 5, p. 272, 1913.
*Omiodes laysanensis.* Op. cit., III, 1, p. 19, 1914.
*Pyrausta thermantoidis.*** Op. cit., II, 5, p. 273, 1913.
*Scoparia lycopodiæ.** Op. cit., II, 3, p. 104, 1910.
*Scoparia nectarioides.*** Op. cit., II, 5, p. 273, 1913.

*Aristotelia gigantea.* Op. cit., II, 5, p. 274, 1913.
*Thyrocopa sapindiella.** Op. cit., II, 5, p. 274, 1913.
*Archips fuscocinereus.* Op. cit, II, 5, p. 275, 1913.
*Archips sublichenoides.*** Op. cit., II, 5, p. 276, 1913.
*Tortrix semicinerana.* Op. cit., II, 5, p. 276, 1913.
*Epagoge urerana.** Op. cit., III, 2, p. 93, 1915.
*Capua cassia.** Op. cit., II, 4, p. 183, 1912.
*Capua santalata.** Op. cit., II, 5, p. 276, 1913.
*Euhyposmocoma ekaha.** Op. cit., II, 3, p. 105, 1910.
*Euhyposmocoma trivitella.* Op. cit., II, 5, p. 278, 1913.
*Semnoprepia fuscopurpurea.* Op. cit., III, 2, p. 94, 1915.
*Semnoprepia ferruginea.** Op. cit., III, 2, p. 294, 1915.
*Petrochroa trifasciata.* Op. cit., III, 2, p. 97, 1915.
*Opogona purpuriella.** Op. cit., II, 5, p. 280, 1913.
*Opogona apicalis.** Bull. Ent. Exp. Sta., H. S. P. A., 6, p. 17, 1909.
*Ereunetis penicillata.*** Op. cit., 6, p. 13, 1909.
*Gracilaria mabaella.** Proc. Haw. Ent. Soc., II, 3, p. 89, 1910.
*Gracilaria hauicola.** Op. cit., II, 3, p. 106, 1910.
*Gracilaria dubautiella.** Op. cit., II, 5, p. 278, 1913.
*Gracilaria hibiscella.** Op. cit., II, 5, p. 279, 1913.
*Gracilaria ureræita.** Op. cit., II, 2, p. 94, 1915.
*Gracilaria urerana.** Op. cit., III, 2, p. 95, 1915.
*Philodoria pipturicola.** Op. cit., III, 2, p. 96, 1915.
*Bedellia oplismeniella.** Op. cit., II, 4, p. 184, 1912.
*Bedellia bœhmeriella.** Op. cit., II, 4, p. 185, 1912.

Respectfully submitted,
OTTO H. SWEZEY,
Honorary Curator of Entomology.

**Ichthyology.** To our collection of Sharks has been added a complete cast of the Thresher Shark of eastern waters, a cast of the head of an unusually large Hammer Head Shark from our waters, and several fine skulls. Mr. Thompson has also added many fine specimens to our large collection of native fish (several as yet undescribed), and a number of fruits. For the purpose of exhibiting at the Maui County Fair he made a large series of casts of stone or wooden implements, which proved a great attraction in the Arts and Crafts Section of the Fair.

**Library.** In the Library it is surprising to see how much work can be done in very unsuitable quarters; I quote from the report of the Librarian, Miss E. B. Higgins:—

"The most important Library event for 1916 was certainly the appointment of a regular Library Assistant. The aid thus given is tending to the development of the Museum's literary workshop and the increase of its usefulness to an extent not heretofore possible.

"In August of this year the work of binding was taken up vigorously. Our assistant, Miss M. Claire Steinbring, has shown great care and good judgment in preparing serials for the bindery. The number of books bound is 264. The care and distribution of publications has been turnedover almost entirely to the Library assistant, who is doing well with this work also.

"As regards accessions, the number is much larger than for 1915, although many of our European exchanges were cut off. Among gifts may be mentioned: Fifteen early Smithsonian publications, Dr. Cooke's gift of 130 separates, Hawaiian newspapers from Father R. Yzendoorn.

"We have been fortunate in the purchase of a set of the Reports of the British Association for the Advancement of Science, from 1843-1914. These reports arrived very opportunely during the visit of one of the scientists from the Kilauea Observatory, who particularly needed the set in his work. Dr. Cooke's gift of separates includes some very rare and valuable papers, especially those on Hawaiian Botany and Mollusca. The newspapers from Father Reginald are particularly valuable on account of the Hawaiian histories by S. M. Kamakau that they contain.

"A record of the use of the Library by outsiders, begun in in September, shows that from that date to the end of December, thirteen visits were made for the purpose of study, and that one visitor came every day during a period of three weeks, spending from two to six hours on each occasion. Mr. Joseph S. Emerson in connection with the classification of his collection of shells has also made frequent use of the Library.

"The indexing of Cook's last voyage is progressing as rapidly as opportunity offers. The advantage and convenience of the index when complete becomes more apparent as the work progresses.

"A bibliography of Professor W. D. Alexander's writings, including articles in periodicals, has been under way for some time

past. This list of more than a hundred titles is now as nearly complete as we have been able to make it.

"The search for missing parts to complete our files is going on steadily, various important items having been secured during the year, and there is good prospect that several long series may be available soon. The card catalogue reference work in connection with old works on Hawaii is also kept up in addition to the regular accession work, with the result that the availability of the Library is more than keeping pace with its numerical increase."

SUMMARY OF LIBRARY ACCESSIONS FOR 1915.

| | | |
|---|---|---|
| Volumes received by exchange | 120 | |
| Volumes received by purchase | 195 | |
| Volumes received by gift | 36 | 351 |
| Parts and pamphlets received by exchange | 673 | |
| Parts and pamphlets received by purchase | 49 | |
| Parts and pamphlets received by gift | 792 | 1514 |
| Total | | 1865 |

**Exhibition Halls.** The appointment of the Exhibition Superintendent has proved a very important step in advance in the administration of the Museum. Not only has the staff been increased in efficiency, but the scientific members have been relieved from the many undesirable interruptions of their regular work, and the Exhibition Halls and the surrounding grounds have been kept in far better order than was possible when all that was added to the other duties of the Director. Mrs. Helvie has also found exercise for her faculties (including patience) in guiding many visitors through the halls. I quote from her report:

"During the year the usual work on the Exhibition Halls, in the Laboratory Building and on the grounds has gone on with but slight interruptions, and the work accomplished by the three janitors has been most satisfactory. Everything has been kept up to standard as far as possible. The increase in the regular Museum staff has necessarily meant additional work to the Superintendent and her assistants. The new vacuum cleaner has been in use frequently and is especially efficient in cleaning the tops of cases, and many of the larger exhibits that have heretofore been out of reach.

"The number of visitors to the Museum has kept up very well all through the year, the smallest attendance being in the months of October and November. Many classes from the different schools

in Honolulu have visited the Museum accompanied by their teachers. The pupils were bright, alert and well-behaved, and seemed to be interested in all they saw.

"During August and September, after five years service, the Exhibition Superintendent was granted two months vacation. Meantime Mrs. J. E. Higgins carried on the work very acceptably."

The table of attendance appended shows the proportion of the nationalities (except in those in which there were few representatives, as Koreans, Formosans, Hindus, negroes, Philippinos, Porto Ricans, etc., which are in small numbers); it also shows that the total attendance, which, owing to the less number of steamers, fell in 1915, has nearly regained the total of 1914, our largest record.

| | | | |
|---|---|---|---|
| 1913 ..... | 14,980 | 1915 ..... | 13,985 |
| 1914 ..... | 15,573 | 1916 ..... | 15,529 |

TABLE OF ATTENDANCE.

| 1916 | Whites. | Hawaiians. | Portuguese. | Chinese. | Japanese. | Others. | Days open. | Average. | Totals. |
|---|---|---|---|---|---|---|---|---|---|
| January ..... | 917 | 352 | 155 | 148 | 176 | 17 | 22 | 80.3 | 1,765 |
| February ..... | 1493 | 184 | 89 | 165 | 179 | 66 | 22 | 99. | 2,176 |
| March ..... | 1005 | 136 | 48 | 55 | 130 | 8 | 22 | 62.9 | 1,382 |
| April ..... | 710 | 77 | 36 | 90 | 166 | 16 | 21 | 52.2 | 1,095 |
| May ..... | 625 | 112 | 106 | 61 | 117 | 15 | 21 | 50.4 | 1,036 |
| June ..... | 698 | 186 | 68 | 113 | 233 | 7 | 22 | 59.4 | 1,305 |
| July ..... | 786 | 127 | 66 | 85 | 138 | 4 | 21 | 57.9 | 1,206 |
| August ..... | 811 | 159 | 55 | 84 | 205 | 26 | 22 | 61.7 | 1,340 |
| September ..... | 534 | 163 | 84 | 135 | 307 | 27 | 22 | 56. | 1,250 |
| October ..... | 539 | 85 | 42 | 102 | 114 | 9 | 22 | 40.2 | 891 |
| November ..... | 537 | 83 | 79 | 38 | 195 | 30 | 20 | 48.2 | 962 |
| December ..... | 696 | 91 | 63 | 52 | 189 | 30 | 21 | 53.2 | 1,121 |
| Totals ..... | 9,351 | 1,755 | 891 | 1,128 | 2,149 | 255 | 258 | 60.2 | 15,529 |

Among the distinguished scientific visitors may be named Sr. Giovanni Podenzana, Conservatore del Museo Civico di Spezzia, Italy; Charles Peabody, Curator of European Archeology, Peabody

Museum, Cambridge, Mass.; Professor William Lyon Phelps of Yale; Chaplain Jos. Clemons and wife, Kinabalu explorers; Mr. and Mrs. Scoresby Routlege, after exploring Easter Id.; Prof. H. E. Gregory of Yale; Prof. Arthur L. Day of the Carnegie Institution, and Sir Rider Haggard.

**Photography.** In the Photographic Department we have greatly missed Mr. Dean H. Lake, and certainly much less work has been done, but the Director has managed to make the necessary photographs for illustration and filing, as well as for exchange.

**Museum Press.** The Printery has by no means been idle. The first part of the Fornander Papers promised in the last Report has been issued and has drawn forth much favorable comment; more than enough to form the second part has been printed, but it has been thought best to issue a larger part later in order to divide the subject matter better. A well-illustrated paper on Hawaiian *Amastra*, by Dr. Cooke has been distributed, as has the Director's Annual Report.

Mr. Reynolds has been busy in various ways, especially in placing the linings in the steel trays of the entomological cases, a delicate and tedious job which will extend into the next year. A large number of carefully made packing cases have been required for specimens sent to Philadelphia for identification, and for various other needs. His good work has been well sustained during the year. [211]

# List of Accessions.

## ETHNOLOGICAL.

*By Gift.*

Anonymous friend of Mr. Henry Holmes, Honolulu:

L. Simmons collection from New Zealand: (B 1222-1229)
Three mere, 1 fern beater, 2 tiki, 2 fish-hooks.

J. F. Connelly collection from Australia: (B 1231-1279)
Stone dish, 4 upper grinding-stones, 4 husking-stones, 4 husking pounders, 1 skin-dressing stone, 2 boolyer stones, 1 axe-grinding stone, 1 stone adze, 6 stone axes, 2 stone axes or surgical instruments, 1 skull, 4 gravestones, 1 basket "booka", 1 basket, 4 knitted bags, 1 male pubic cover, 1 badge worn by old men, 2 neck- or waistbands, 1 necklet of quandong seeds, 1 vial nardoo, seeds, 8 fire drills, 1 stone sinker for fish line.

R. J. Borden, Honolulu. (B 1135-1136)
Two skulls. Oahu.

C. M. Cooke, Jr., Honolulu. (B 1204-1214)
Two hammers, 2 adzes, 1 grindstone, 1 polisher, 3 ulumaika, 1 ball, 1 file. Hawaiian Islands.

C. M. Cooke, III, Honolulu. (B 1212-1203, 1304-1308)
Three adzes, 1 grindstone. Oahu.

George Cooper, Maui. (B 1201)
Mortar. Maui.

Theo. Dranga, Honolulu. (B 1303)
Adze. Kauai.

J. K. Farley, Kauai. (B 1332)
Petroglyph. Kauai.

Alexander Hume Ford, Honolulu. (B 1314)
Nose flute. Fiji.

Max Frech, first officer, S. S. "Prinz Waldemar". (B 1218-1221)
Shell money, 3 necklaces, one each of beetles' prothoraces, elytra and femora. New Guinea. Fig. 3.

Frank Girdler, Honolulu. (B 1309-1310)
Adze (broken), dish.

A. Gross, Maui. (B 1318)
Stone poi-pounder. Maui. Fig. 8.

E. Henriques, Honolulu. (B 1280)
Model of sling. Hawaii. Fig. 7.

A. F. Judd, J. A. Wilder, G. P. Cooke and C. M. Cooke, Jr., Honolulu. (B 1159-1200)
Adze, 4 artefacts, 2 hammers, sinker, head of unfinished poi-pounder, awa mortar (?) of wood, shell beads, fish-hook fragment, 2 file points, file, 3 polishers, 3 spoons or scrapers (Fig. 1), 4 leho lu hee, 2 pohaku lu hee, 4 sinkers, 2 hammers, supposed artefact. Molokai.

J. Kauwakane, Maui. (B 1319-1320)
Shank of pa hi aku, pohaku lu hee. Maui.

Sam K. Parker, Jr., Mrs. Helen P. Widemann, Ernest N. Parker, James K. Parker and Mrs. Eva Parker Woods. (B 1230)
Ahuula of Kuahaliulani.

C. E. Pemberton, Honolulu. (B 1301-1302)
Sinker, poi-pounder. Hawaii.

Fred Pierce, Honolulu. (B 1312)
Skull and thigh bone. Oahu.

H. D. Sloggett, Maui. (B 1315-1316)
Poi-pounder (stirrup form), grinder. Kauai.

Robert S. Thurston, Honolulu. (B 1313)
Ringed mortar. Oahu. Fig. 4.

Joseph Welch, Maui. (B 1317)
Poi-pounder (stirrup form). Kauai.

W. D. Westervelt, Honolulu. (B 1281-1282)
Tree mould, lava bomb. Hawaii.

*By Collection.*

C. M. Cooke, Jr., Honolulu. (B 1189-1195, 1311)
Lamp, poi-pounder, grindstone (?), ulumaika, stopper. Molokai. Grindstone. Oahu.

J. F. G. Stokes, Honolulu. (B 1128-1134)
Two hundred and thirty-one shell beads, perforated shells for necklaces, glass beads, skull. Kauai.

Stokes, Reynolds and Tseu, Honolulu. (B 1216)
Petroglyph. Oahu.

A. M. and J. F. G. Stokes, Honolulu. (B 1321-1329)
Pohaku lu hee, 2 pakaa, grindstone, broken poi-pounder, lamp, file, noa, ulumaika. Maui.

*By Purchase.*

Two skulls, 20 masks. New Guinea. (B 1137-1158)

Necklace, shells and coconut. Caroline Ids. (B 1215)

Six pa hi aku and line, 8 pa hi aku (shank only), piece of pearl shell for shanks. Hawaiian Ids. (B 1283-1297)

Two ulumaika, hohoa or washing-stick. Hawaiian Ids. (B 1298-1300)

Hinai. Maui. (B 1330)

Pestle in phallic form. Oahu. (B 1331)

*By Loan.*

A. L. C. Atkinson, Honolulu. (L 969-970)
Two coconut-scrapers. Maui. Fig. 1.

G. P. Cooke, Molokai. (L 971-990, 1042-1046)
Three stone sinkers, 2 poi pounders, 5 pohaku lu hee, 4 leho lu hee, 5 ulumaika, 4 hammers, adze, natural stones, stone club-head or sinker, head of poi-pounder, noa stone. Molokai.

Bruce Carwright, Jr., Honolulu. (L 993-1014)
Small adze of shell, Sling-stone, 8 adzes, 2 sinkers, 7 polishing-stones, hammer, 2 files. Oahu.

Bruce Cartwright, Jr., Trustee, Estate of Grace W. Kahoalii, dec., Honolulu. (L 991-992)
Lei, ivory beads and niho, Niihau mat. Hawaiian Ids.

Mrs. Beke Ihihi, Honolulu. (L 1015-1029)
Twenty-five coconut spoons, 4 gourd plates, 19 pu niu on stand, 3 puniu, 6 umeke, coconut basket, 3 lei kukui, 10 shells, small canoe model, glass case. Hawaiian Ids.

Mrs. Rosalia T. K. Tripp. Honolulu. (L 1041)
Mamo lei, green silk cord. Hawaiian Ids.

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## ADDITIONS TO THE LIBRARY.

[Received by exchange unless otherwise indicated.]

ADELAIDE, SOUTH AUSTRALIA.

Royal Geographical Society of Australasia (South Australian Branch).—Proceedings, xvi.

Royal Society of South Australia.—Transactions and Proceedings, xxxix.

AVALON, SANTA CATALINA.

The Islander, 4 numbers, 1916. Gift.

AMSTERDAM, HOLLAND.

Universiteit van Amsterdam.—Catalogus van de Schenkling-Quack, 1915.

AUBURNDALE, MASSACHUSETTS.

American Fern Society.—Journal, vi, 1-3.

AUCKLAND, NEW ZEALAND.

Auckland Institute.—Annual Report, 1915-1916.

BALTIMORE, MARYLAND.

Johns Hopkins University.—University Circular, 1915, nos. 9, 10; 1916, nos. 1-7.

Maryland Geological Survey.—Upper Cretaceous, 2 vols.

BARCELONA, SPAIN.

Real Academia de Ciencias y Artes.—Boletin, iii, 7.—Memorias xi, 24-30; xii; xiii, 1-3.—Nomena del Personal Academico, 1915-1916.—Fiestas del CL Aniversario de su fundacion, 1764-1914.

BERKELEY, CALIFORNIA.

University of California.—Publications: American Archæology and Ethnology, xi, 5-7; xii, 1-5.—Botany, v, 9-10; vi, 9-12; vii, 1-2.—Pathology, ii, 18-19. Also 5 miscellaneous pamphlets (reprints).—Physiology, v, 2.—Zoology, xii, 13-17; xiii, 11-12; xvi, 2-8; 10-17; xvii, 1-6.—Chronicle, xvii, title, index; xviii, 1-4.

BERLIN, GERMANY.

Anthropologische Gesellschaft.—Zeitschrift, 4-5.

BERN, SWITZERLAND.

Bern Historisches Museum.—Jahresbericht, 1915.

BOSTON, MASSACHUSETTS.

American Academy of Arts and Sciences.—Proceedings, li, 7-13; lii, 1-6.

Boston Public Library.—Annual Report, 1915-1916.—Bulletin, viii, 4; ix, 1-3.

Boston Society of Natural History.—Proceedings, xxxv, 3. Also x-xiv, 1864-1871. Purchased.

Boston Museum of Fine Arts.—Annual Report, 1915.—Bulletin, xiv, 81-85.—General index to Vols. i-xiii, 1903-1915.

Massachusetts Horticultural Society.—Transactions, 1915, part ii; 1916, part i. Given by Dr. W. T. Brigham.

BRISBANE, QUEENSLAND.

Royal Society of Queensland.—Proceedings, xxvii, 1915.

BROOKLYN, NEW YORK.

Museum of the Brooklyn Institute of Arts and Sciences.—Annual Report, 1915.—Brooklyn Museum Quarterly, ii, 3-4; iii, 1-4.—Science Bulletin, ii, 6; iii, 1.

BUENOS AIRES, ARGENTINE REPUBLIC.

Museo Nacional de Buenos Aires.—Anales, xxvii.

BUITENZORG, JAVA.

Jardin Botanique.—Bulletin, xvi; xix; xx; xxi; xxii.

CALCUTTA, INDIA.

Indian Museum.—Annual Report, 1914-1915.—Memoirs, iii, title and index; v, 1-3; vi, 1.—Records, viii, 7-8; x, title and index; xi; xii, 1-3.

CAMBRIDGE, ENGLAND.

Cambridge University Museum of Zoology.—Annual Report, 1914-1915.

CAMBRIDGE, MASSACHUSETTS.

Harvard University Library.—Annual Report, 1915.

Museum of Comparative Zoology.—Bulletin, lvi, 3-4 and title; lvii, 4; lx.—Memoirs, xxv, 4, title page and contents.—Annual Report, 1914-1915.

Peabody Museum.—Annual Report, 1914-1915.

CAPETOWN, SOUTH AFRICA.

South African Museum.—Annals, xiv, 2-3; xv, 3.—Annual Report, 1915.

CHARLESTON, SOUTH CAROLINA.

American Association of Museums.—Proceedings, 1915-1916. Purchased.

Field Museum.—Botanical Series, ii, 11, title page and contents.—Geological Series, iii, 10, title page and contents.—Ornithological Series, i, 10.—Report Series, v, 1.—Zoological Series, x, 14.

Journal of Geology, xix, part 4, 1911. Purchased.

COLUMBUS, OHIO.

Ohio State University.—Biological Survey Bulletin, 1-8.—Ohio Naturalist, i-xv.—Ohio Journal of Science, xvi, 1-3; xvii, 1.—University Bulletin, xx, 16.

CINCINNATI, OHIO.

Cincinnati Museum Association.—Annual Report, 1915.—Annual Exhibition of American Art, 1916.—Special Exhibition, 3. Given by the Association.

Lloyd Library.—Bibliographical Contributions, i; ii, 1-11.—Bulletin, 1-19.—Mycological Notes, 1-12; 15-18; 20-43.—18 miscellaneous papers.

DETROIT, MICHIGAN.

Detroit Museum of Art.—Bulletin, x, 5-9; xi, 1. Given by the Museum.

DUBLIN, IRELAND.

Royal Irish Academy.—Proceedings, xxxi, 54; xxxii (B), 7-12 and title; xxxii (C), 14-21 and title; xxxiii (B), 1-3; xxxiii (C), 1-11.

EDINBURG, SCOTLAND.

Royal Society of Edinburg.—Proceedings, xxxv, 3; xxxvi, 1, 2.

FLORENCE, ITALY.

Societá Italiana di Antropologia.—Archivio per l'Antropologia e la Etnologia, xlv, 1, 2.

GOTHA, GERMANY.

Petermann's Mitteilungen, lxi, 12; lxii, 3. Purchased.

HONOLULU, OAHU.

Board of Commissioners of Agriculture and Forestry.—Bulletin, iii.

Hawaiian Almanac and Annual, 1917. Given by Mr. T. G. Thrum.

Hawaiian Agricultural Experiment Station.—Annual Report, 1914-1915.

Hawaiian Entomological Society.—Proceedings, iii, 3.

Hawaiian Evangelical Association.—Annual Report, 1916.

Hawaiian Historical Society.—Annual Report, 1913, 1915.—Genealogical Series, 2. Also number 1. Given by Dr. C. M. Cooke, Jr.—Reprints, extracts from Meares' Voyage.

Hawaiian Mission Children's Society.—Annual Report, 1916.

Hawaiian Sugar Planters Association.—Division of Entomology, Bulletin, 13.

Hawaiian Forester and Agriculturist, i, 5-12; ii, title and index; viii, 12; xi, 4-12, title and index; xii. Received from Prof. Illingworth.

Hawaiian Volcano Observatory.—Weekly Bulletin, ii, 31, 32; iii; iv.

Ka Au Okea, 142 numbers, April 24, 1865–Dec. 12, 1872 (broken file). Given by Father Reginald Yzendoorn.

Ka Nupepa Kuokoa, 308 numbers, Jan. 18, 1862-Oct. 22, 1870 (broken file). Given by Father Reginald Yzendoorn.

Mid-Pacific Magazine, xi, 2-6; xii; xiii, 1.

Oahu College.—Catalogue, 1915-1916.—Directory, 1916.—Punahou 75th Anniversary Pageant and 2 pamphlets.

Paradise of the Pacific, xxix, 1916. Given by the Editor.

The Hawaiian, i, 2, 1895 (Julian Hayne, editor). Gift.

U. S. Weather Bureau.—Climatological Data, Jan.-Oct., 1916.—Annual Summary, 1915. Given by the Bureau.

KILAUEA, HAWAII.

Hawaiian Volcano Observatory.—Weekly Reports, Jan.-Dec., 1916. (Typewritten.)

LANCASTER, PENN.

American Anthropological Association.—American Anthropologist, xvii, 4, title and index; xviii, 1-3.—Memoirs, ii, title and index; iii, 1, 2. Purchased. [217]

Science, xxxviii-xliv. Given by Dr. W. T. Brigham.

American Folk-lore Society.—Journal, xxix, 1916. Given by the Society.

LAWRENCE, KANSAS.

University of Kansas.—Science Bulletin, vi, and title page.

LEIDEN, HOLLAND.

Archiv für Ethnographie, xxi-xxiii. Purchased.

Rijks Ethnographisch Museum.—Verslag van den Directeur, 1914-1915.—Katalog, x, xi.

LEIPZIG, GERMANY.

Deutsche Ornithologische Gesellschaft.—Journal für Ornithologie, lxiv, 1. Purchased.

LIVERPOOL, ENGLAND.

Liverpool School of Tropical Medicine.—Annals, ix, 4; x, 1, 2.

LONDON, ENGLAND.

British Association for the Advancement of Science.—Reports, 1843-1914. Purchased.

British Ecological Society.—Journal of Ecology, current numbers. Purchased.

British Museum.—Catalogue of Auriculidæ.... (Pfeiffer), 1857.—Catalogue of the Lepidoptera Phalænæ.... (Hampson), iv-v, 1903-1905.—Catalogue of Orthoptera.... (Kirby), 3 volumes, 1904-1910.—Flora of Jamaica.... (Fawcett and Rendle), i and iii, 1910-1914.—Guide to Mollusca (Gray), part i, 1857.—Report on the collections of natural history.... voyage of the Southern Cross, 1902. All purchased.

Hakluyt Society.—Publications, 2d series, xxxviii; xxxix; xl. Purchased.—Linnean Society of London.—Journal of Zoology, xxxi, 1907-1915. Purchased.—Proceedings, 125th-127th Session, Oct., 1913-Oct., 1915. Purchased.—Transactions, Zoology, xvi. Purchased.

Malacological Society of London.—Proceedings, iv. Purchased.

Royal Anthropological Institute.—Journal, xlv; xlvi, 1.—Man, current numbers. Purchased.—List of publications.

Royal Geographical Society.—Geographical Journal, xliii-xlvii. Purchased.

Zoological Society of London.—Proceedings, 1913, 1-11; 1914, 1-11. Purchased.

Periodicals by Purchase:

Journal of Botany, current numbers.

Journal of Malacology, xi.

Nature, current numbers.

Quarterly Journal of Microscopical Science, current numbers.

MADRAS, INDIA.

Government Museum.—Annual Report, 1915-1916. Also three archæological publications.

MANILA, PHILIPPINE ISLANDS.

Bureau of Science.—Philippine Journal of Science: A (general science), x, 6; xi, 1-3. B (medical science), x, 5, 6; xi, 1-3. C (botany), x, 6; xi, 1-3. D (general biology and ethnology), x, 4-6; xi, 1-4. Philippine Leaflets of Botany, Articles 117-118. Purchased.

MELBOURNE, VICTORIA.

Royal Society of Victoria.—Proceedings, xxviii. Also first series, ix; xix; xxiii. Purchased.

MEXICO, MEXICO.

Instituto Geologico de Mexico.—Boletin, 31, 32.—Parergones, v, 1-10.—Departamento de Minas.—Boletin Minero, i, 1-3, 7-12; ii, 9. Given by the Department.

MINNEAPOLIS, MINNESOTA.

University of Minnesota.—Agriculture Experiment Station Bulletin, 151-159.—Current Problems, 8.—Miscellaneous, Minnesota Geological and Natural History Survey, Zoological Division, Occasional Paper, i.—Social Sciences, 6.

NEUCHÂTEL, SWITZERLAND.

Société Neuchâteloise de Géographie.—Bulletin, xxiii (fin); xxiv, 1915 (in one).

NEW HAVEN, CONNECTICUT.

American Journal of Science, curreut numbers; index to volumes, xxxi-xl; 12 volumes and 19 parts from Series i-iii. Purchased.

Connecticut Academy of Arts and Sciences.—Memoires, v.—Transactions, xix, pp. 110-445; xx, pp. 161-399.—Manual of the writings in Middle English by J. E. Wells.

American Oriental Society.—Journal, xxxvi, 1.

NEW ORLEANS, LOUISIANA.

Louisiana State Museum.—Biennial Report, 5th, 1914-1915. Given by the Museum.

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Polynesian Society.—Journal, xxiv, 3, 4, title, index; xxv, 1-3.—Memoirs, ii; iv.

NEW YORK, NEW YORK.

American Geographical Society.—Bulletins, xlvii, index.—Geographical Review, i, 1-6; ii, 1-5.

American Museum of Natural History.—Annual Report, 1915. Anthropological Papers, x, 4; xi, 11, 12; xiii, 3; xvii, 2-4; xviii, 1; xix, 1.—Bulletin, xxxiv.—Guide Leaflet, 44.—Handbook series, 5.—Journal, xv, 8, title and index; xvi, 1-7.—Memoirs, N. S. i, 6.—Monograph Series, 2.—Cicindelinæ of North America, by Messrs. Harris and Leng.

Columbia University. Bulletin of Information, 16th series, 2-6, 8, 10, 12, 16-20, 22, 23. Contributions from the Department of Botany, 251-264.

Museum of the American Indian (Heye Foundation).—Contributions, i-iii; iv, 1. Given by the Museum.

New York Botanical Garden.—Bulletin, 33, 34.

New York Entomological Society.—Journal, xxii, 4. Given by Dr. Hiram Bingham.

New York Zoological Society.—Zoologica, ii, 3-5. Given by the Society.

United Engineering Society.—Annual Report of Library Board for 1915. Given by the Society.

NORWICH, ENGLAND.

Castle Museum.—Annual Report, 1915. Given by the Museum.

OBERLIN, OHIO.

Oberlin College.—Wilson Bulletin, xxvii, 4, title and index; xxviii, 1-3.—Laboratory Bulletin, 16.

OTTAWA, CANADA.

Geological Survey.—Annual Report, 1915.—Anthropological Division, Report, 1915.—Memoirs, 50, 51, 55, 58, 60, 72, 76, 77, 79, 81, 85, 86, 90.—Museum Bulletin, 20-24.

Royal Society of Canada.—Transactions, ix, 1, 2.

PARIS, FRANCE.

Ecole d'Anthropologie.—Revue Anthropologique, xxv, 7, 8, 12; xxvi, 1-5.

Revue Générale de Botanique, current numbers. Purchased.

Société d'Anthropologie, Bulletins et Mémoires, vi, série, v, 4.

PHILADELPHIA, PENNSYLVANIA.

Academy of Natural Sciences.—Journal, xvi, 3.—Proceedings, lxvii, 3; lxviii, 1.—Manual of Conchology, 92. Purchased.

American Philosophical Society.—Proceedings, 220-227.

American Mineralogist, i, 4, 1916. Gift.

Philadelphia Commercial Museum.—Annual Report, 1915.

University of Pennsylvania Museum.—Anthropological Publication, vi, 3.—Museum Journal, vi, 4, title, index; vii, 1-3.

Wagner Free Institute.—Annual Announcement, 1916-1917.

PIETERMARITZBURG, SOUTH AFRICA.

Natal Government Museum.—Annals, iii, 2.

PITTSBURG, PENNSYLVANIA.

Carnegie Museum.—Annals, x, 1-4.—Annual Report, 1916.—Memoirs, viii, 1.

Carnegie Institute.—Founder's Day, 1916.

PLYMOUTH, ENGLAND.

Marine Biological Association.—Journal, ii; New Series, i, 1, 4; ii, 1, 2; iii, 1-5; iv; x, 4; xi, 1.

PORTICI, ITALY.

Laboratorio di Zoologia generale e agraria della R. Scuola Superiore.—Bolletino, ix; x.

PORT MORESBY, TERRITORY OF PAPUA.

Papua Annual Report, 1912-1913; 1913-1914. (Lieutenant Governor of Papua to the Australian Parliament). Given by the Government.

PROVIDENCE, RHODE ISLAND.

Roger Williams Park Museum.—Park Museum Bulletin, vi; vii, 1-6.

QUADIAN, INDIA.

Review of Religions, xv, 3-5. Samples.

RIO DE JANEIRO, BRAZIL.

Museu Nacional de Rio de Janeiro.—Archivos, xviii; xix.

Instituto Oswaldo Cruz.—Memorias, vii, 1, 2, and title, index; viii, 1.

ST. LOUIS, MISSOURI.

Missouri Botanical Garden.—Annals, ii, 4, title, index; ii, extra title and index; iii, 1-3.

Washington University.—Washington University Studies, iii, part i, 1-2; iii, part ii, 2; iv, part i, 1. Given by the University.

SALEM, MASSACHUSETTS.

Peabody Museum.—Frederick Ward Putnam: An appreciation by Edward S. Morse.—One-hundredth Anniversary Exhibition of the building of Cleopatra's Barge, Salem, July 17-Sept. 16, 1916.

SAN DIEGO, CALIFORNIA.

San Diego Society of Natural History.—Transactions, ii, 2-3.

SAN FRANCISCO, CALIFORNIA.

California Academy of Sciences.—Proceedings, 4th series, v, 5-8; vi, 1-7.

SARAWAK, BORNEO.

Sarawak Museum.—Journal, ii, 2.

Singapore, Straits Settlement.

Royal Asiatic Society.—Journal, 67-69, 71-73.

Springfield, Illinois.

Illinois State Museum.—General Guide, 1914. Given by the Museum.

Stanford University, California.

Leland Stanford Junior University.—Trustees series, 29, 30. —University Series, 22, 23.—University Bulletin, 88-90.

Stockholm, Sweden.

Köngl. Vitterhets Histoire och Antiquitets Akädemien.—Forvannen, x, 1915.

Suva, Fiji.

Fijian Society.—Transactions, 1911-1915.

Na Mata, Dec., 1915-Nov., 1916.

Sydney, New South Wales.

Australian Museum.—Records, xi, 1-5.—List of Publications, 1916.

Department of Agriculture.—Agricultural Gazette, xxvi, title index; xxvii, 1-11.—Science Bulletin, 16.

Department of Mines, Geological Survey.—Annual Report, 1915.—Fisheries, Annual Report, 1915.—Mineral Resources, 20-23.—Memoirs, Ethnological Series, 2.—Composition and porosity of the intake beds of the great Australian artesian basin, by E. F. Pittman. Sydney, 1915.

Department of Trade and Customs.—Fisheries, iii, 7; iv, 1.

Linnean Society of New South Wales.—Proceedings, xl, 3, 4; xli, 1, 2.

Royal Society of New South Wales.—Journal and Proceedings, xlix, 3, 4, title, index.

Tokyo, Japan.

Imperial Earthquake Investigation Committee.—Bulletin, viii, 2.

Tring, England.

Zoological Museum.—Novitates Zoologicæ, current numbers. Purchased.

Tufts College, Massachusetts.

Tufts College.—Tufts College Studies, iv, 3, 4.

Upsala, Sweden.

University of Upsala.—Bulletin of the Geological Institution, xiii, 1.

Victoria, British Columbia.

Provincial Museum.—Annual Report, 1915.

WASHINGTON, DISTRICT OF COLUMBIA.

Archaeological Institute of America.—Art and Archaeology, current numbers. Purchased.

Bureau of American Ethnology.—Annual Report, 1907-1908; 1908-1909.—Bulletin, 55, 62.

Carnegie Institution of Washington. Classics of International Law: Rachael, 2 volumes; Vattel, 3 volumes. — Geophysical Laboratory: Annual Report, 1915; Miscellaneous, 3 papers by Hostetter and Sosman.—List of publications, March, 1916.—Publications: 86, 151, 189, 202, 206, 215 A-B, 217, 229, 232, 233, 236, 238, 74 index; 34 (Vol. II), 240-243.—Yearbook, 1915.

National Academy of Sciences.—Proceedings, i, 12, title and contents; ii, 1-11.

National Geographic Society.—National Geographic Magazine, xxv, 3-6. Given by Dr. W. T. Brigham.

Smithsonian Institution.—Annual Report of the Board of Regents, 1915. Also, 1853, 1871, 1872, 1876, 1880, 1881, 1894. Given by the Institution.

Contributions to Knowledge, i; xxiii-xxvi; xxviii. Given by the Institution.—Miscellaneous Collections, lxii, 4, 5; lxiv, 3-5; lxv, 9, 14; lxvi, 1-13, 15. Also, xxxi; xlvi, 2. Given by the Institution.—Publications, 2409; 2421.

U. S. Bureau of Fisheries.—Commissioners' Report, 1915.—Documents, 823-825; 829-831; 835. Given by the Bureau.

U. S. Department of Agriculture.—Biological Survey Announcements, 1916.—Bulletins, 333 (Purchased), 326, 396.—Experiment Station Record, xxxiv, current numbers; xxxv current numbers. Purchased.—Farmers Bulletins, 702, 706, 712, 760, 774, 783.—North American Fauna, 40.—Report of the Biological Survey, 1916. Given by the Department.

U. S. Department of Commerce.—Statistical Abstract, 1915.

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U. S. National Museum.—Annual Report, 1915.—Bulletins, 50, part 7; 93, 94.—Contributions from the National Herbarium, xvi, 14, title and index; xvii, 6-8; xviii, 3-5; xix.—Proceedings, xlix; l.

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Washington Academy of Sciences.—Journal, vi, 15. Given by the Carnegie Institution. [223]

WELLINGTON, NEW ZEALAND.

Dominion Museum.—Annual Report, 1925-1916.
New Zealand Institute.—Transactions and Proceedings, xlviii.

WHITE PLAINS, NEW YORK.

Readers' Guide to Periodical Literature, xv, 9, 11; xvi, 2. Given by Oahu College Library.

ZURICH, SWITZERLAND.

Naturforschende Gesellschaft.—Vierteljahrsschrift, lx, 3-4.—Neujahrsblatt, 1916.

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## MISCELLANEOUS.

[Purchased unless otherwise designated.]

Banks, Eleanora.—Putnam's correspondence handbook. New York, n. d.

Bishop, Charles Reed. Engrossed copy of resolution passed by the Bank of California on the death of Charles Reed Bishop, June 7, 1915. Given by the Bank of California.

Bishop, Charles Reed.—Engrossed copy of resolution passed by the California Pacific Title Insurance Company on the death of Charles Reed Bishop, June 7, 1915. Given by the Insurance Company.

Bishop, Sereno Edwards.—Reminiscences of old Hawaii. Honolulu, 1916.

Bishop, William Warner.—Practical handbook of modern library cataloging. Baltimore, 1914.

Blatchley, W. S.—Coleoptera of beetles known to occur in Indiana. Indianapolis, 1910.

Blatchley, W. S. and Leng, C. W.—Rhynchophora or weevils of North Eastern America. Indianapolis, 1910.

Brigham, W. T.—Guatemala: the land of the Quetzal. New York, 1887. Given by the author.

Catalogue of charts, etc., U. S. Coast and Geodetic Survey, 1899. Given by Dr. W. T. Brigham.

Clark, Kate M.—Maori tales and legends. London, 1895.

Conchological Papers.—Vol. I (a collection of separates). n. p., n. d.

Cruise, Richard A.—Journal of a ten months' residence in New Zealand. London, 1824.

Cutter, Charles A.—Rules for a dictionary catalog. Washington, 1904.

Daly, Reginald A.—Magmatic differentiation in Hawaii. Chicago, 1911.

Day, Arthur L., and Shepherd, E. S.—Geophysics: water and the magmatic gases. Washington, 1913. (Separate.)

Dewar, Thomas R.—Ramble round the globe. London, 1894. Given by Mr. J. W. Waldron.

Dillon, P.—Voyage in the South Seas. London, 1829. 2 vols.

Edwards, Edward, and Hamilton, George.—Voyage of H. M. S. Pandora. London, 1915.

Erdland, P. A.—Die Marshall-Insulaner: Leben und Sitte..... Münster, 1914.

Forbes, Kate M.—Volcano Kilauea.—Honolulu, 1915.

Francis, G. W.—Analysis of the British ferns.—London, 1858. Received from the Missouri Botanical Garden in exchange for botanical specimens.

Fréville, de.—Histoire des nouvelles découvertes..... Paris, 1874.

Fyson, P. F.—Flora of the Nilgiri and Pulney Hill-tops. 2 vols. Madras, 1915.

Groneman, J.—Tyandi-Barabudur in Central Java. Semarang-Soerabaia, 1901. Gift.

Groneman, J.—Hindu ruins in the plain of Parambanan. Semarang-Soerabaia, 1901. Gift.

Haddon, Alfred C.—Papuan dances (typewritten). n. p., n. d.

Hall, Ivan C.—Testicular infusion agar..... From Journal of Bacteriology, 1916. Given by the author.

Hallowell, Edward.—Report upon the reptilia of the North Pacific Exploring Expedition. Philadelphia, 1860. (Separate.)

Hedley, Charles.—Ethnology of Funafuti. Sydney, 1896-1900. (Separate.) Gift.

Helms, Richard.—Report of a collecting trip to Mount Kosciusko. Sydney, n. d. (Separate.) Given by Miss E. Helms.

Herndon, William L.—Exploration of the valley of the Amazon. Part 1. Washington, 1853. Received from the Missouri Botanical Garden in exchange for botanical specimens.

Hill, T. G.—Essentials of illustration. London, 1915.

Hocken, Thomas M.—Early history of New Zealand. Wellington, 1914.

Hooker, Joseph D.—Illustrations of Himalayan plants..... London, 1915. Received from the Missouri Botanical Garden in exchange for botanical specimens.

Howitt, A. W.—On the organization of Australian tribes. Adelaide, 1889. (Separate.) Gift.

Jaggar, T. A., Jr.—Activity of Mauna Loa. Hawaii, 1915. (Separate.) Gift.

Jardin, Edélestant.—Essai sur l'histoire naturelle de l'archipel des Marquises..... Paris and Cherbourg, 1862.

Johnson, Duncan S., and York, Harlan H.—Relation of plants to tide levels. Washington, 1915.

Johnston, J. C.—Maoria. London, 1874.

Judd, G. P.—Notes made by G. P. Judd in 1834 on his tour of Oahu. (Typewritten copy.) Given by Hon. A. F. Judd.

Kakaako Korrespondence.—Honolulu, 1916. Given by Mr. Bruce Cartwright, Jr.

Keith, Arthur.—Antiquity of man. London, 1915.

Kirk, Thomas.—The student's flora of New Zealand..... Wellington, 1899.

Linneus, Carolus.—Systema Naturæ. Lugduni, 1756.

——Systema Naturæ. Gmelin ed. 3 vols. bound as 9. Lipsiæ, 1788-1793.

——Systema Naturæ. 3 vols. bound in 4. Vindobonæ, 1767-1770. The above editions of Linneus received from the Missouri Botanical Garden in exchange for botanical specimens.

Lister, Arthur.—Monograph of the mycetozoa. London, 1894. Received from the Missouri Botanical Garden in exchange for botanical specimens. Also second edition, London, 1911. Purchased.

Lowe, E. J.—A natural history of new and rare ferns. London, 1865. Received from the Missouri Botanical Garden in exchange for botanical specimens.

Mackay, Thomas.—A manual of the grasses and forage plants useful to New Zealand. Wellington, 1887.

Macleod, Fiona.—Gael and his heritage. Edinburgh, 1900. (Separate.) Gift.

Mayer, Alfred G.—A history of Tahiti..... New York, 1916. (Separate.)

Meyen, F. J. F.—Beiträge zur Zoologie Gesammelt auf einer reise um die Erde..... Breslau & Bonn, 1834.

Moerenhout, J. A.—Voyages aux iles du Grand Ocean.... Paris, 1837.

Morrill, G. L.—South Sea silhouettes.... Chicago, 1915. Given by Hon. A. F. Judd.

Müller, Carolus. Synopsis muscorum frondosorum.... 2 parts. Berolini, 1849-1851. Received from the Missouri Botanical Garden in exchange for botanical specimens.

National Cyclopaedia of American Biography. Fourteen volumes. New York, 1898-1910. [226]

Nature and Science on the Pacific Coast. San Francisco, 1915.

Nautical Magazine.—Vol. II. London, 1833.

Newman, Alfred K.—Who are the Maoris. Christchurch, n. d.

Noiré, Ludwig.—On the origin of language and the logos theory. Chicago, 1895. (Separate.) Gift.

Petrunkevitch, Alexander.—Attidæ of the Yale Dominica Expedition. New York, 1914. (Separate.) Given by Dr. Hiram Bingham.

Piper, Charles V., and Beattie, R. Kent.—Flora of the Northwest Coast..... Lancaster, 1915. Given by the authors.

Polo (Ser), Marco.—Ser Marco Polo, the Venetian, concerning the kingdoms and marvels of the east. London, 1871.

Rawlinson, George.—Five great monarchies. 4 vols. London, 1862.

Rea, Paul Marshall.—Educational work of American museums. Washington, 1915. (Separate.) Given by Dr. W. T. Brigham.

Ridgway, Robert.—Color standards and color nomenclature. Washington, 1912.

Scrope, G. Poulett.—Geology and extinct volcanos of central France. London, 1858.

Shortland, Edward.—Southern districts of New Zealand. London. 1851.

Sittig, Otto. Compulsory migrations in the Pacific Ocean. Gotha, 1890.

Snyder, J. F.—Primitive urn burial. Washington, 1891. (Separate.) Gift.

Stack, James W.—South Island Maoris. Christchurch, 1898.

Staley, Thomas.—Geography and recent volcanic eruption of the Sandwich Islands. London, 1868. (Separate.)

Stevenson, Robert Louis.—In the South Seas. London, 1900.

Stimpson, William.—Prodromus descriptionis animalium evertebratorum quæ in Expeditione ad Oceanum Pacificum Septentrionalem. Philadelphia, 1857-1860. (Separate.)

Suter, Henry.—Manual of the New Zealand mollusca. Wellington, 1913-1915.

Tashiro, Shiro.—Nine papers on carbon dioxide.—Given by Board of Commissioners of Agriculture and Forestry.

Tavera, T. H. Pardo de.—Medicinal plants of the Philippines. Philadelphia, 1901.

Taylor, Griffith.—Geography of Australasia. Oxford, 1914.

Thompson, Uldrick.—Eugenics for young people. Honolulu, 1913. Given by the author.

Tregear, Edward, and Smith, S. Percy.—A vocabulary and grammar of the Niuë dialect of the Polynesian language. Wellington, 1907.

Tregear, E.—Polynesian bow. New Plymouth, 1892. (Separate.) Gift.

Van Hyning, T.—Building a museum. Cedar Rapids, 1911. (Separate.) Given by Dr. W. T. Brigham.

Walker, Robert.—Five threes, 33,333 miles by land and sea. London, 1884.

Westervelt, W. D.—Legends of gods and ghosts. Boston, 1915. Given by the author.

Westervelt, W. D.—Legends of old Honolulu. Boston, 1915. Given by the author.

Who's Who in America.—Chicago, 1916-1917.

Williams, S. Wells.—Journal of S. Wells Williams. Shanghai, 1911. Given by Prof. F. W. Williams. (Separate.)

Wood, Harry O. On a possible causal mechanism for heave-fault slipping in the California coast range region. Berkeley, 1915. (Separate.) Given by the author.

Wood, Harry O.—On the earthquakes of 1868 in Hawaii. Berkeley, 1914. (Separate.) Given by the author.

Wood, Harry O.—Effects in Mokuaweoweo of the eruption of 1914. New Haven, 1916. (Separate.) Gift of the author.

Wood, J. G.—Insects abroad. London, 1892.

Yale Peruvian expedition of 1911, results of..... (5 separates.) Given by Dr. Hiram Bingham.

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Collection of separates given by Dr. C. M. Cooke, Jr.:

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|---|---|---|
| Botanical papers | | 28 |
| Geological and Paleontological papers | | 7 |
| Zoological papers: | | |
| Birds | 6 | |
| Insects | 17 | |
| Mollusca | 25 | |
| Miscellaneous | 30 | 78 |
| Carbon dioxide papers by Tashiro Shiro | | 9 |
| General miscellany | | 8 |
| Total | | 130 |

Engraving: Small portrait of Captain Cook. Purchased.

Maps: Map of Java. Gift.—Pocket map of Honolulu. Purchased. Map of New South Wales, 1914. Given by the New South Wales Geological Survey.

Manuscripts: Kepelino Manuscript. Received on loan from the Catholic Mission at Honolulu.—Eleven manuscripts, received on loan from the Liliuokalani Trust.

# Notes on Ethnographical Accessions.

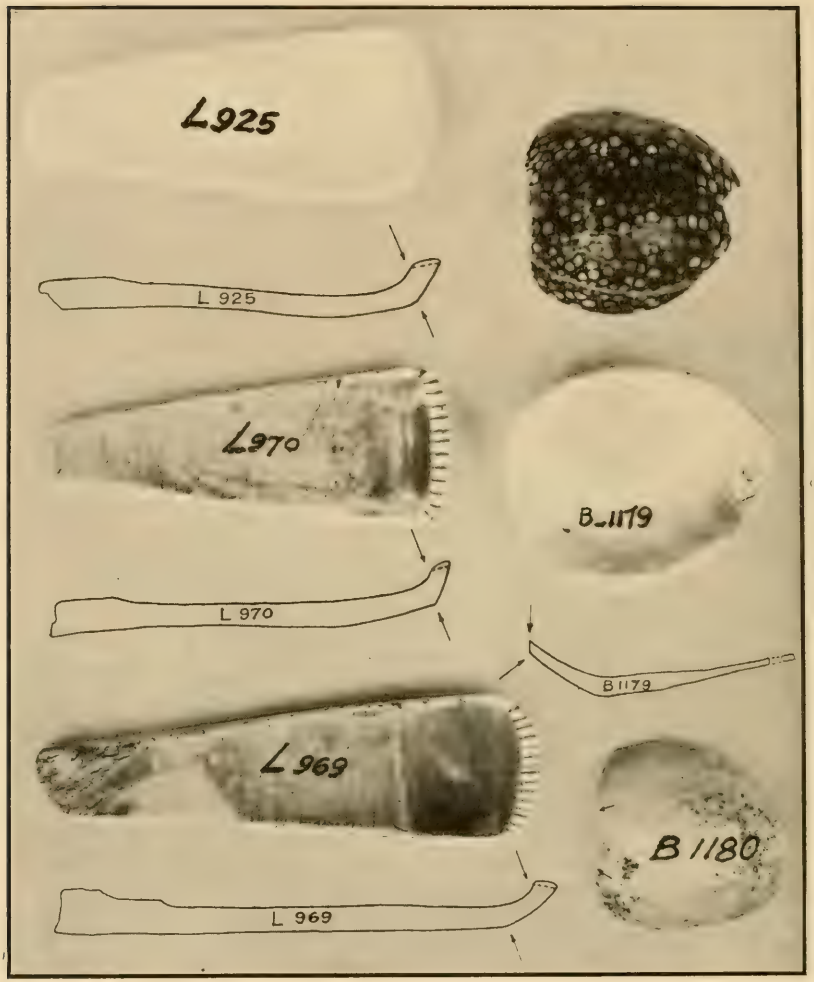
By John F. G. Stokes.

## Some Hawaiian Shredders and Scrapers.

When we view the apparently complete Hawaiian collections in the Bishop Museum, it may be difficult for us to realize that some of the implements, which must have been most common, are now among the rarest. This remark would apply more particularly to specimens of less permanent nature than stone. As examples, might be quoted, the bambu knife and the file of coral; neither of them was in our collections until found on Kahoolawe in 1913. Such tools, simple in their structure though effective enough for their purpose in the hands of their users, were from the nature of their material the first to give way before the imported metal implements, and, not being of interest as curios, have been easily forgotten.

Another such implement was the early form of the *wa'u niu*, coconut-shredder, used for preparing *kulolo* (the Hawaiian dessert made by cooking together shredded taro and coconut meat, sweetened with milk from the unripe coconut). The first example of this early form, to come to our knowledge, was one ploughed up in 1915 at Hauula, Oahu, 1000 feet from the sea, by an employee of Mr. Edgar Henriques, and loaned to the Museum for casting. L 925, Fig. 1. It was a wedge-shaped section of a cone shell (probably *Conus quercinus*) serrated on the interior apical margin. In 1916, Mr. A. L. C. Atkinson found two more, of the same material, on the beach at Kihei, Maui. L 969 and L 970, Fig. 1.

The specimens found were shown to several middle-aged or elderly Hawaiians at various times, and it is interesting to note that all but one of them failed to recognize the shredders until the indented edges were pointed out, and then the use was at once described. The one referred to was John Penchula, from Kau, Hawaii, now a janitor in the Museum, who remembered seeing his father using such an implement. For use the shredder was bound, teeth upward, to a straight stick which rested on a stone and the ground, with the shredder projecting over a dish, and was




1. HAWAIIAN SHREDDERS AND SCRAPERS.

held by the foot. The material to be shredded was taken in both hands and pressed downward against the teeth.

In Fig. 2 is a shredder (L 969) mounted on the ascending prong of a branched stick, by Penchula, after the fashion of one used by his father. It is very similar to a Micronesian pattern. The method of mounting and applying the shredders would no doubt follow individual taste to a large extent. Kulolo is a deli-

cacy still in demand, although a pudding made of arrowroot is rapidly replacing it on account of the simpler preparation of the latter. The implement now used for kulolo is a long piece of iron (often a flat file) serrated at one end, sometimes set in a wooden handle. The operator either stands or sits on it. In the Hawaiian Group we have not come across anything similar to the convenient contrivance used for the purpose in the Marquesas Islands, con-

2. SHREDDER, WITH SUPPORT.

sisting of a wooden stool with a projecting arm and a grater of coral bound to the outer end.[1]

There is some variation in the design of the shredders illustrated. Fig. 1. To the right of the arrows in the cross sections are shown the portions which were shaped (by grinding). Nos. L 925 and L 970 are of a similar and effective pattern, the cutting angle in each being directed upward, and a sharp edge obtained. No. L 970 has apparently seen more use and undergone sharpening by further grinding on the upper edge of the shell section. A comparison of these two specimens will demonstrate this probability. The serrations in both are regular. No. L 969 has not been so evenly serrated, nor does it appear of such good design, since the cutting edge is rounded. It has been much worn.

[1] B. P. Bishop Museum Memoirs, II, 377, Fig. 178.

According to Penchula, sections of the *Cassis* and other large shells were used, in addition to the *Conus*, as was also the hard wood *kauila* (*Alphitonia excelsa*) indented as usual. From a Kauai native it was learned that the naturally serrated edge of the *opihi* (*Patella* spp.) served the same purpose. It was held in the hand, not mounted. The opihi was also used as a spoon, and as a scraper for gourds similarly to the specimens now to be described.

Among deserted house foundations on the south coast of Molokai, Mr. A. F. Judd and Dr. C. Montague Cooke found, in 1916, three dorsal sections of large cowries, which had been artificially broken out, apparently, and further modified by grinding at one end. They are illustrated in Fig. 1, B 1162, *Cypræa intermedia*, B 1179 and B 1180 *C. mauritiana*. One, B 1179, was in very good condition and furthermore was perforated at the end opposite the sharpened part. As shown in the cross section, it had been ground to a very sharp edge, the face of the grinding being parallel to its short axis. The others are much worn, (B 1179 is also broken) and do not now show a sharpened edge.

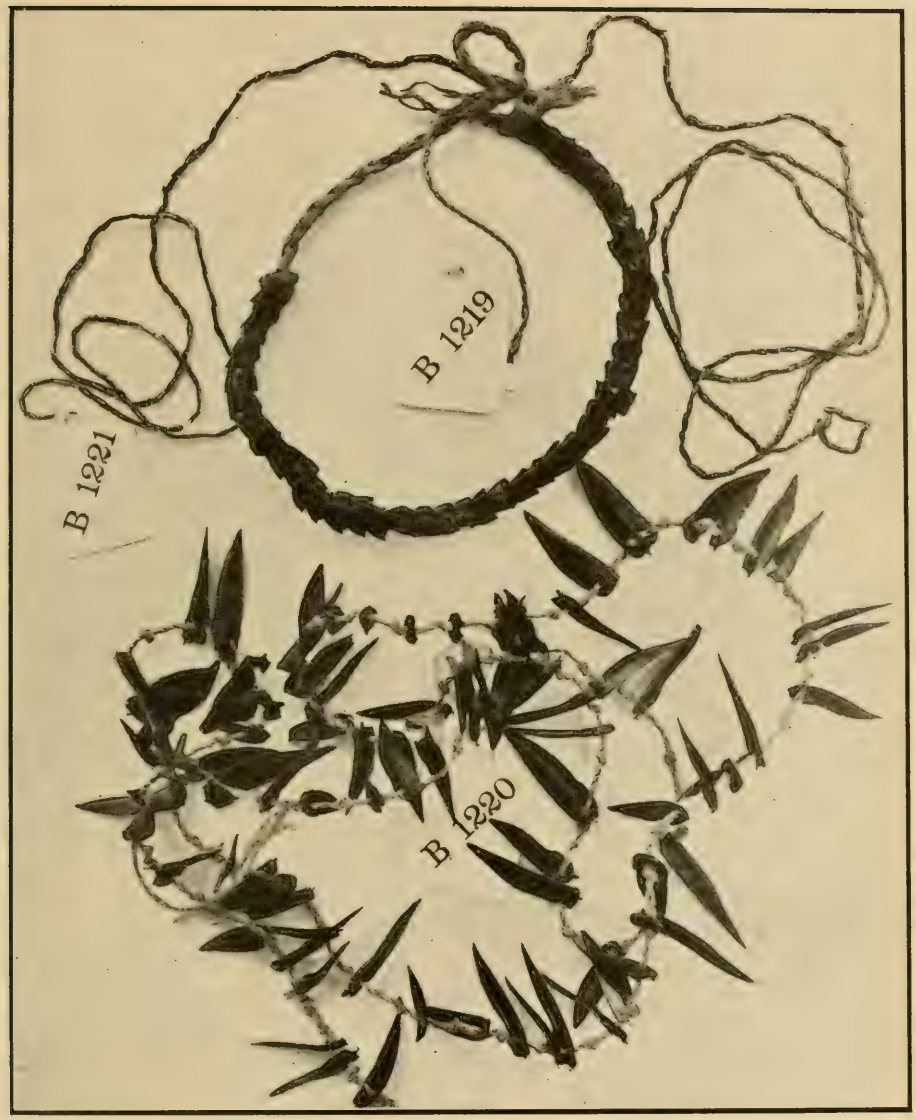
These shells, in addition to being used as coconut-scrapers, were used for cleaning out the pith from the interior of the gourd vessels.[1] In the part of Molokai where found, the latter was probably the principal use for these particular specimens. In operation the shells were held in the hand. In the gourds in the Museum, the pith has been very cleanly scraped away, and the sharp cutting edge of No. B 1179 would have been well adapted for the purpose. By experiment, this scraper was found to accurately engage the interior surfaces of coconuts and gourds.

The Hawaiian name applied to these scrapers would be variously *wa'u ipu* or *wa'u niu* (gourd-scraper or coconut-shredder), accordingly as the implements were used.

### BEETLE NECKLACES FROM NEW GUINEA.

Necklaces of beetles' parts from New Guinea, a form of ornamentation unusual in the Pacific, have recently come to our attention. They were brought to Honolulu by Mr. Max Frech, first officer of S. S. Prinz Waldemar, who generously divided his treasures with the Museum. He obtained them from an engineer, of another steamer, who had secured them on an expedition many

[1] The gourd vessels were described by Dr. Brigham, B. P. B. M. Memoirs, II, 321.




3. BEETLE ORNAMENTS. KAISERIN AUGUSTA RIVER, NEW GUINEA.

miles inland on the Kaiserin Augusta River, N. W. German New Guinea. Mr. Frech, who has traded for many years on the New Guinea coast, says that he has not seen them in the possession of the coast natives.

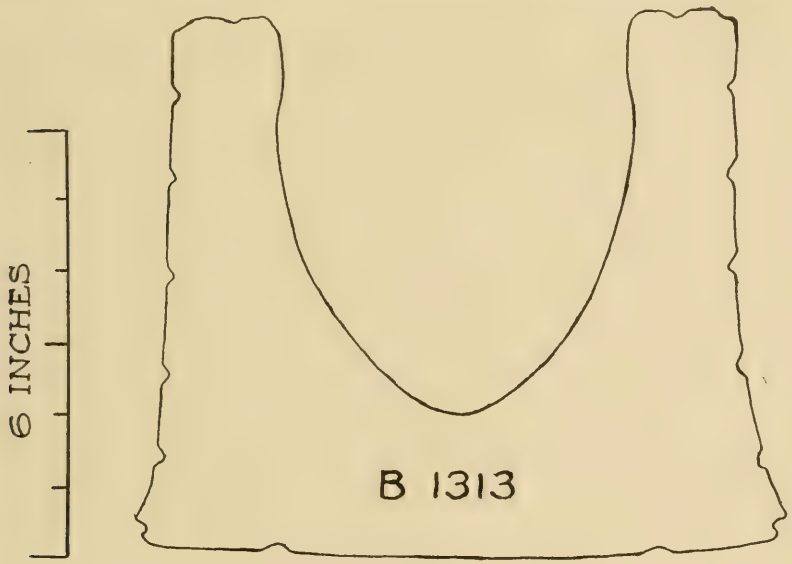
4. RINGED STONE MORTAR.

According to Mr. J. C. Bridwell, they are the prothoraces, elytra and femora of two species of Buprestid beetles, probably of the genus *Chalcophora*. In Fig. 3 are shown: B 1220, a complete string of the elytra; B 1221, half a string of the femora; and B 1219, part of a string of the prothoraces. Their beautiful iridescence, the dominant brilliant green changing to old gold, was the cause of the levy on the insects for their glittering coverings. In Nos. 1219

and 1220, the string is of native manufacture, and in 1221, of cotton thread. The cord of No. 1220 is knotted between each wing sheath. In this specimen, a somewhat musical tone results from the rattling of the necklace.

ORNAMENTED MORTAR OF STONE.

In Fig. 4 is illustrated a cylindrical stone mortar found on the uplands of Helemano, Oahu, and presented to the Museum by Mr. Robert S. Thurston. Hawaiian mortars were not unknown to the




5. SECTION OF STONE MORTAR.

Museum,[1] but this specimen is worthy of special notice on account of the presence of many grooves encircling the exterior. There are six on the exterior wall, two on the upper rim and one on the bottom. Their presence in the latter two places would indicate that the motive was ornamentation, not utility.

Considering the necessarily bulky requirements of such an implement, the Hawaiian cylindrical mortar had been developed into a form which was not inelegant, as may be seen in those pre-

[1] They were used for obtaining oil by crushing kukui nut kernels, as already described by Dr. W. T. Brigham, B. P. B. M. Memoirs, I, 364-366.

viously illustrated.[1] The rings would thus add a slightly greater degree of refinement. They have apparently been made by pecking, and have not been subsequently smoothed, as was the original surface of the exterior. The stone is a basalt, of a degree of fineness similar to that in the other cylindrical mortars. The specimen is 200 mm. high, 223 in diameter at the base. The cavity is 143 mm. deep, 123 in diameter at the mouth, and 127 a quarter of the way down, and converges at the bottom. A cross section is shown in Fig. 5.

AN HAWAIIAN SLING.

The sling was always considered an effective arm in Hawaiian warfare, and the great care with which the sling-stones were made[2] would seem to bear this out. Yet the only Hawaiian sling in our collections heretofore, No. 4812, has been a somewhat crude contrivance of loosely braided bast fibre of the hau (*Paritium tiliaceum*) with the braiding broadened (like matting) in the middle for a pocket. Fig. 6. On the handles, the braiding is three-ply, each fold consisting of two or more flat, overlying strands of the fibre, rounded and not twisted over the turn (thereby avoiding an entirely flat braid). Toward the pocket, other strands were inserted, thickening the cord, but not increasing the number of folds, until the pocket was reached. Here the technique changed from cord-braiding to mat-plaiting, but the latter was less regular than usual with matting. It has the appearance of a hasty and untidy job, and is in strong contrast to the neat corded work in which the Polynesians in general, and the Hawaiians in particular, were so adept. One of the handles is short, apparently broken.

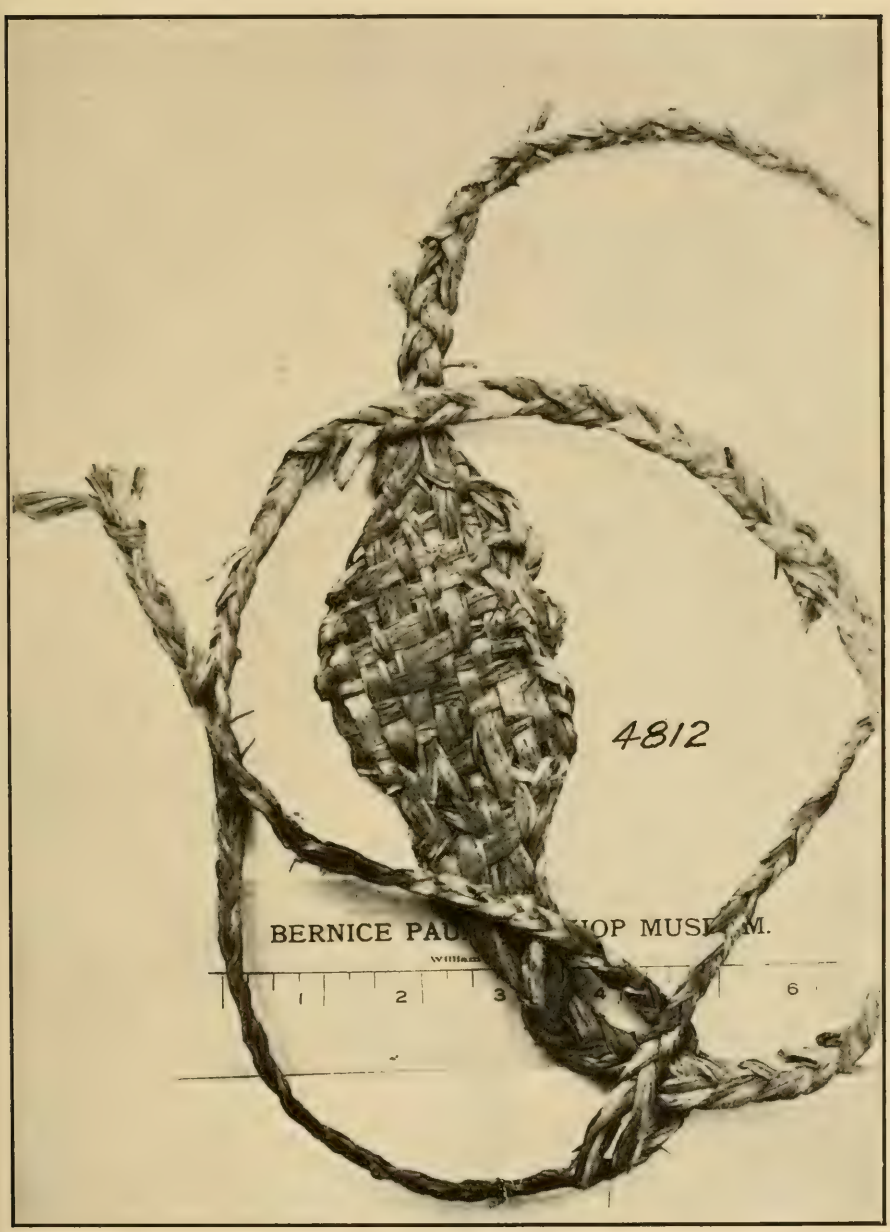
King's description[3] might have been applied to similar specimen: "The slings have nothing singular about them; and in no respect differ from our common slings, except that the stone is lodged on a piece of matting instead of leather."

Cook saw sling-stones on Kauai, as clearly shown by his reference to "some oval pieces of whetstone well polished, but somewhat pointed towards each end,"[4] but apparently not the slings. His description, immediately preceding the above, of the pieces of

[1] Op. cit., Fig. 28. A spherical form, from Hawaii, was illustrated in Occasional Papers, V, 43, Fig. 6.

[2] W. T. Brigham, B. P. B. M. Memoirs, I, 344-346.

[3] Cook's Third Voyage, London, 1784, III, 152, relating to the island of Hawaii. [4] Op. cit., II, 248.




6. HAWAIIAN SLING, HAU FIBRE.

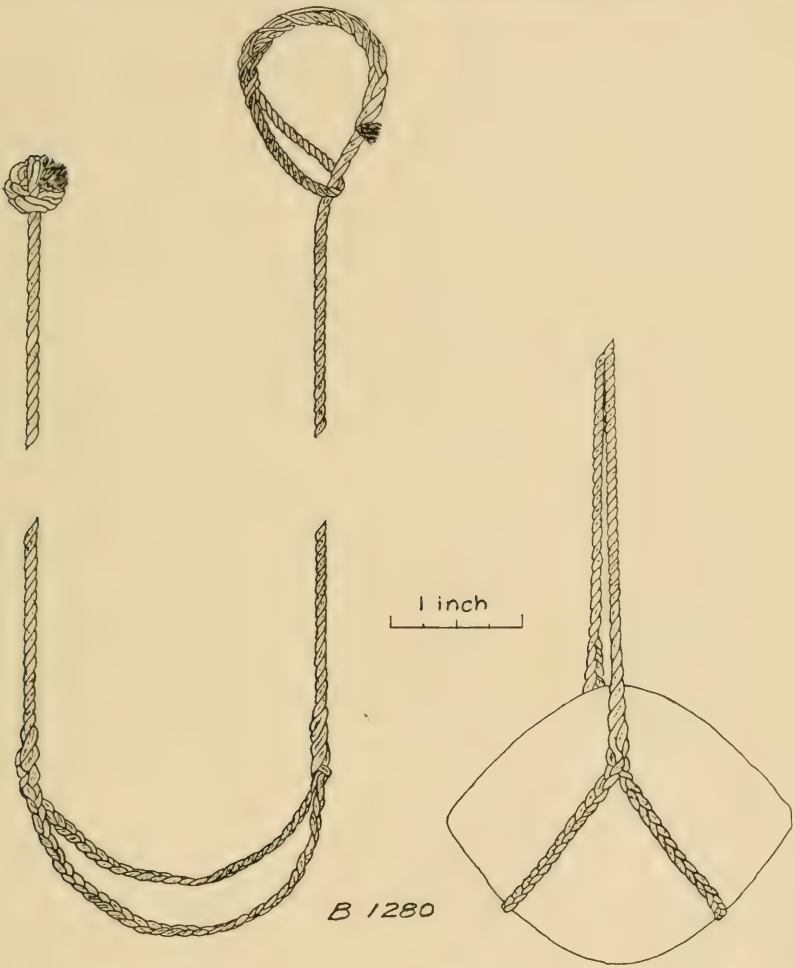
hematite "artificially made of an oval shape divided longitudinally, with a narrow groove in the middle of the convex part.....it weighed a pound" undoubtedly applied to the *pohaku lu hee*, or stone sinker[1] for the octopus trap. To this stone, he said, "was applied a cord of no great thickness." It is questionable if this cord was a sling as Cook inferred; more than probably it was the cord for fastening to the stone the appliances of the trap.[2]

Rev. Wm. Ellis noted on the island of Hawaii that "....they employed the sling, and their stones were very destructive. The slings were made of human hair, plaited, or the elastic fibres of the cocoa-nut husk....."[3] Human hair for cord was not uncommon in these islands, although its principal use was in ornamentation. Since he made no special mention of the pattern, it is to be assumed that the Hawaiian sling of his description resembled in form those he had seen in Southern Polynesia. Of the latter, he gives the following details, intended to apply to the southern groups in general: "The most dangerous missile was the *uriti* or stone, from the *ma* or sling. The latter was prepared with great care, and made with finely braided fibres of the cocoa-nut husk, or filaments of the native flax, having a loop to fasten it to the hand at one end, and a wide receptacle for the stone in the centre."[4] The description of the shape would probably answer for the Hawaiian specimen in Fig. 6, if the latter were undamaged.

A model of a very neat appearing sling (Fig. 7) has been given to the Museum by Mr. Edgar Henriques. It was made to his order by S. W. Kahikina, of Kiilae, Kona, Hawaii, and, according to the maker, represents the form once used in this group. Its principal characteristic is the replacement of the pocket by two loops, which are well adapted to hold the double conical sling-stone. The material is the Hawaiians' most durable fibre, *olona* (*Touchardia latifolia*). It will be noticed that, in this example, as in No. 4812, the technique changes; but from twisted cords to braided loops. One character not present in the older specimen is the arrangement of the handles. The held cord of this sling ends in a running loop for the wrist, while the freed cord terminates in a large knot.

[1] B. P. B. M. Memoirs, I, 351, 352, Fig. 14, and Pl. XXXVI-XXXIX.
[2] Op. cit., Fig. 14.
[3] Ellis, Tour through Hawaii, London, 1828, p. 141.
[4] Ellis, Polynesian Researches, London, 1830, II, 490.

There are in the Museum no slings from Southern Polynesia to compare with Ellis' account, but there are some from the Caroline Islands, of thickly braided coir, which are provided with a large plain loop for the wrist, and not the running loop.




7. MODEL OF SLING MADE OF OLONA FIBRE, WITH SLING-STONE.

Going farther afield were found slings from the west coast of New Britain, and the neighboring Siassi Islands, in which the pocket is a fold, of palm leaf-sheath fibre, attached to twisted or braided cords of other material. The held cord in each of the

two slings did not terminate in a loop, but a large tassel of the sheath fibre. These islands are, of course, outside the Polynesian area.

Ellis' other notes on the Southern Polynesian weapon are interesting. "The sling was held in the right hand, and, armed with the stone, was hung over the right shoulder, and caught by the left hand on the left side of the back. When thrown, the sling, after being stretched across the back, was whirled around over the head, and the stone discharged with great force."[1] They were, he said, powerful and expert marksmen, and the stones when (as was general) thrown horizontally four or five feet from the ground, were seen with difficulty, and often did much execution.[2] He noted further that the Hawaiians slung their stones with great force and precision, and were supposed to have been able to strike a small stick at fifty yards' distance, four times out of five.[3] The latter were very expert in avoiding a stone, if they saw it thrown.[4]

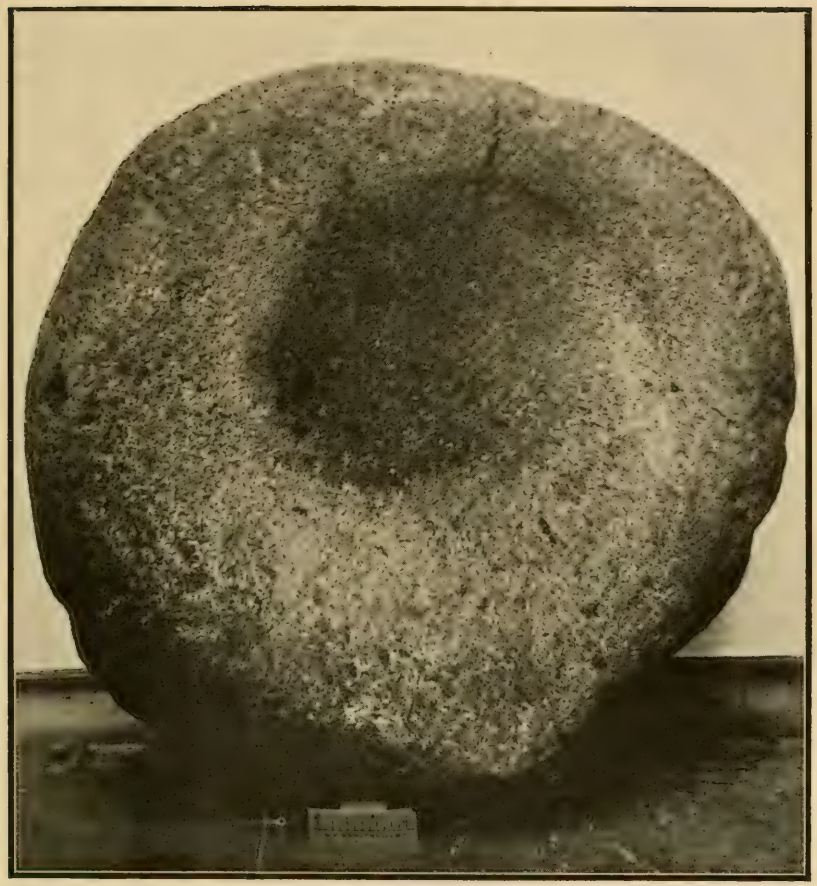
The stones seen by Ellis, in the South, were water-worn pebbles, and some "sharp, angular and rugged." The latter may have been the double conical form, artificially shaped, found through Polynesia, Micronesia and Melanesia. He failed to see the latter type (outlined in Fig. 7) in these islands, as he mentioned only those which were stream- and beach-worn.

In Dr. Brigham's description[5] of various Oceanic sling-stones, he seems to infer that the pointed oval stone was so shaped that it could be made to revolve on its axis by the skill of the slinger and thereby attain directness of aim. I would be more inclined to attribute a simpler motive in the manufacture and to suppose that the development of a longer axis was a requirement necessary to prevent the stone from rolling out of the pocket of the sling.

### A POI-POUNDER PLATTER OF STONE.

The wooden platters or troughs, on which poi was pounded, have been described and figured by Dr. W. T. Brigham.[6] The ordinary form was a long, wide and thick platter, slightly concave on the upper surface, with straight parallel sides and rounded ends, and was generally large enough to accommodate a worker at each

[1] Polynesian Researches, II, 490.
[2] Polynesian Researches, II, 491.
[3] Tour, p. 133.
[4] Tour, p. 141.
[5] B. P. B. M. Memoirs, I, 345.
[6] B. P. B. M. Memoirs, II, 316-318.



8. PAPA KUI POI POHAKU. MAUI.

end.[1] Another and shorter form for a single worker was of rarer occurrence.[2] So far, all the poi-pounding platters seen were of wood.

An interesting variant of the material for this utensil was found in the possession of Mr. A. Gross, of Wailuku, Maui, and kindly presented to the Museum by that gentleman. It was of stone (Fig. 8), and its size would indicate that it was intended for a single worker. While its outside periphery is only approximately circular, the pounding surface is quite so. The measure-

[1] B. P. B. M. Memoirs, II, 316-318, Fig. 109.
[2] Op. cit., Fig. 110.

ments are: Two greatest chords, 702 and 652 mm. (27½ and 25½ inches); total height, 191 mm. (7½ inches); diameter of concavity (pounding surface), 545 mm. (21½ inches); depth of concavity, 83 mm. (3¼ inches).

It was found upon enquiry among Hawaiians on the north coast of Maui that poi-pounding platters of stone were not unknown, and that the poi-making was done more quickly on stone than on wood. However, they were not much in favor for the reason that the stone poi-pounders or pestles were frequently broken by such use. No other such stone platter has come under our observation. [242]

# New Hawaiian Plants.—VI.

Charles N. Forbes.

January, 1917.

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### Tetraplasandra racemosa, sp. nov.

Arbor 6–7 dm. alta; foliis pinnato 5, 7, 9, foliolatis, rachis 18–26 cm. longis; foliolis cordatis, cordato-oblongis ad ellipticis, incanis, 5.5–10.4 cm. longis, 4.3–5.5 cm. latis. Inflorescentia racemosa, incana, 2.5–6 dm. longa; pedicellis 4–5 mm. longis. Calyx cylindriatum, truncatum, incanum, 7 mm. altum. Corolla 16–20 venosa; 5–6 petalis, recurvis, intus 2–5 venosis, glabris, luteis, extus incanis, 9 mm. longis. Stamina 16–20, uniserata. Ovarium 12-loculare, stylopodio conico, stigma indivisum, obsolete 12–14-radiatum. Drupa ovoida, 1 cm. alta, 9 mm. lata.

Type locality, Nonou mountains, Kauai. C. N. Forbes, No. 595, K. October 16-17, 1916. Also occurs on the Haupu range near Nawiliwili Bay, Kauai. Forbes, No. 709, K. October 31, 1916.

A tree with straight trunk 6–7 dm. high, clothed with smooth gray bark, and crowned with spreading branches. Leaves crowded, with clasping petioles, odd pinnate with 5, 7 or 9 leaflets, all parts mealy tomentose, the rachis 18–26 cm. long. The leaflets mostly cordate to cordate-oblong, the terminal and often the upper pair elliptical, bright green sprinkled with mealy tomentum above, pure white mealy tomentose below, the middle pair of leaflets often longer than the others, all on short petiolules, 5.5–10.4 cm. long, 4.3–5.5 cm. wide. Inflorescence a stout pendulous raceme, mealy tomentose in all parts, 2.5–6 dm. long; the pedicels continuous with the calyx, 4–5 mm. long. Calyx cylindrical, with truncate border, smooth but becoming strongly ribbed when dry, white mealy tomentose, 7 mm. high. Corolla 16–20-ribbed on the inside, breaking into 5–6 petals, never more, which are strongly 2–5-ribbed on the inner side, white mealy tomentose on the outside, glabrous and yellowish-colored on the inside, acute, strongly reflexed, 9 mm. long. Stamens 16–20 in a single circle, recurved. Ovary 12-celled, crowned by a conical stylopodium bearing a

9. TETRAPLASANDRA RACEMOSA, SP. NOV.

10. TETRAPLASANDRA RACEMOSA INFLORESCENCE.

depressed, undivided, obscurely 12–14-rayed stigma. Summit of ovary and stigma deep red. Fruit ovoid, 1 cm. high, 9 mm. wide.

This species differs from all other known Hawaiian *Araliaceæ* in its inflorescence; a character which excludes it from the generic limits of *Tetraplasandra* as hitherto known. It does not appear to be very closely related to the other species, certainly not to the two known Kauai species, and only bears a superficial resemblance to *T. hawaiiensis* Gray in the pubescence. About a dozen trees were seen at the type locality, usually occuring as individuals in separated localities. Only one tree was seen at the Haupu Station, although probably others occur. All were uniform. The panicle is strictly pendulous, even when very young, those in the illustration being bent in order to mount them on the herbarium sheet.

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Since writing the above, Mr. G. C. Munro has informed me that he has seen this tree on ridges, somewhere between Makaweli and Hanapepe on Kauai. [240]

# PUBLICATIONS

OF THE

# Bernice Pauahi Bishop Museum

## Honolulu, Hawaii, U. S. A.

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Vol. III.—Ka Hana Kapa: The Making of Bark-cloth in Hawaii. By Wm. T. Brigham. 1911. Complete volume.

Vol. IV.—Fornander Collection of Hawaiian Antiquities and Folk-lore. Gathered by Abraham Fornander. With Translations Revised and Illustrated with Notes by Thomas G. Thrum. Part I, 1916. Part II, 1917. [Part III, completing volume, in press.]

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No. 3. Director's Report for 1915. New Hawaiian Plants, V. By Charles N. Forbes. 1916.

No. 4. Director's Report for 1916.—Notes on Ethnographical Accessions. By John F. G. Stokes.—New Hawaiian Plants, VI. By Charles N. Forbes. 1917.

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A Handbook for the Bishop Museum. 1903. [Out of print.]

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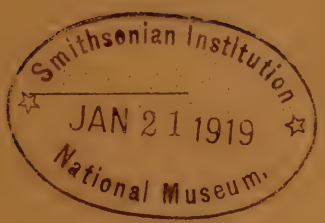


HONOLULU, H. I.
BISHOP MUSEUM PRESS
1918

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OF THE

BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY

VOL. VI—NO. 5

# Director's Report for 1917

HONOLULU, H. I.
BISHOP MUSEUM PRESS
1918

*Report presented February 18, 1918.*

*Returned approved March 1, 1918.*

# Director's Report for 1917.

In presenting his last report of the activities of the Bishop Museum the present Director may avail himself of the last official opportunity of presenting his thanks to the Board of Trustees for allowing him, as a parting gift, a year's vacation, and also the title of Director Emeritus. Such courtesy makes easier the ending of twenty-eight years of work in this Museum. Sad feeling that is merely personal becomes infinitely small in presence of the world-wide sorrow often coming home to those less able to bear crosses.

I do not propose here to review the work of those years so full of hope for ideals now ended; when the two small rooms originally allotted to the Museum have grown almost to the number desired, even longed for, both by Mr. Bishop and myself; I dismiss the growth of the body of the Museum as a matter in which I can have no part.

The first official issue of the Museum Press was my Annual Report in 1898, one half of which I put in type before we had a printer, and it remained as I left it, when our printer put the finished report to press. At that time the Board of Trustees consisted of:

| | |
|---|---|
| Sanford B. Dole, LL.D. - - - - | President |
| William O. Smith - - - - | Vice-President |
| Rev. Charles M. Hyde, D.D. - - - | Secretary |
| Henry Holmes - - - - - | Treasurer |
| Samuel M. Damon, Joseph O. Carter, William F. Allen | |

The Museum Staff was:

| | |
|---|---|
| William T. Brigham, A.M., A.A.S., etc. - - | Director |
| Acland Wansey - - - - - - - | Curator |
| John J. Greene - - - - - - - | Printer |
| ..... - - - - - | Taxidermist |

This report has been long out of print, but the important parts of it were reprinted in the Report of a Journey Around the World

issued in 1913. Two of the above Trustees have resigned; three are dead. Of the Staff all survive, although Mr. Wansey has returned to his home in Australia.

Before the establishment of the Museum Press our only audience was the small company of visitors who found their way to the exhibition halls which were open at first only one day in the week. Our publications at once carried the Museum, as it were, over the world for our ever increasing list of exchanges now numbers 146, and it may be seen from the printed list how widely they are distributed. Our Annual Reports help to bind together the directorates of the various museums in a very agreeable system of mutual exchange of professional information, and in leaving this distinguished and learned company I desire to acknowledge the numberless instances of assistance and information I have received from my confrères in many countries. If I have been able in some instance to be of use to my colleagues it has been but little in proportion to the greater knowledge and far more extensive collections of the older museums that I have laid under contribution always most kindly rendered.

During the past year this Museum has lost from its staff a greater number than in any previous year. Y. En Tseu, our Chinese draughtsman, left us to continue his studies in the University of Louisiana, and his skill is greatly missed. August Perry, assistant printer for some years, and J. C. Bridwell, temporary assistant in Entomology have both left the Museum; Miss M. Claire Steinbring and her successor as Library assistant, Miss Lucile Lucas, have both been called away from the Islands; Lieutenant Richard Ernest Lambert who so satisfactorily filled the position of Director's assistant, has returned at the call of his Country to his former position in the Navy and has sailed as Paymaster on the Schurz. Of all these only Miss Lucas's place has been filled. An assistant in the Printery is greatly needed with the work on the two volumes of Fornander papers to be printed. But the new Director

may have different plans for the needed assistants, and his hand should be free.

The Staff at the end of 1917 was as follows:

William T. Brigham, Sc.D. (Columbia) - - Director
William H. Dall, Ph.D. - Honorary Curator of Mollusca
John F. G. Stokes - Curator of Polynesian Ethnology
C. Montague Cooke, Ph.D. (Yale) - Curator of Pulmonata
Charles N. Forbes - - - Curator of Botany
Otto H. Swezey - - Honorary Curator of Entomology
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To all of these the Director tenders his heartfelt thanks for most ready and unfailing assistance and cooperation which has made his labor pleasant among many difficulties and disappointments, and without which the Museum could not have held its creditable position.

During the year Hon. Samuel M. Damon and Alfred W. Carter have resigned from the Board of Trustees and Mr. William Williamson and Mr. Richard H. Trent have been appointed in their place.

**Ethnology.**—Mr. Stokes reports as follows:

"Accessions.—These are listed in the following pages. The number and total value show a great falling off from the average of the few preceding years, which can be explained, though only partly, by the Curator's activity in other branches of Museum work. Some of the gifts and loans, however, are worthy of especial notice. Among the former may be mentioned the body part of a canoe dug up in a peat bog on Washington Island and presented by the Greig brothers, and two wooden idols given by the Pacific Mill Co. through the kindness of Mr. J. W. Waldron.

"Of the loans there should be mentioned a large general collection from Mr. A. L. C. Atkinson, which represented well the tools of the Hawaiians; it also included a drum, and a damaged specimen of the very rare Necker Island images. Mrs. E. K. Mehrten

loaned good specimens of a kapa and a mat, which had been used by certain chiefs, and a Fijian club, said to have been the favorite weapon of Kaumualii, King of Kauai. Mr. E. A. Knudsen loaned two wooden idols of unusual form, which were cast and returned. From Mr. G. C. Munro were borrowed three uncommon specimens, selected from his collection, and from Mrs. James Munro, part of a pestle on the handle of which an animal face had been carved.

"Field Work.—Although the Curator himself undertook no expeditions during the year, the offer of Mr. Charles S. Dole of Lihue, Kauai, to make additional measurements of the site of the ancient structure crowning Mauna Kahili, was accepted. His notes on the trip, measurements of the site and report of interviews with residents have been received and filed for future reference, and will without doubt prove of much value.

"Notes on ethnographical specimens were prepared and published in the Annual Report for 1916.

"Heiau and Subsidiary Work to Hawaiian Worship.—My draughtsman, Y. En Tseu, left in the middle of the year to continue his studies in the Louisiana University. Before he left he completed the platting of the heiau sites from the Curator's survey notes, and calculated the positions of most of them. In addition he copied on the typewriter a large amount of material from native manuscripts and newspapers concerning heiau, together with translations by the Curator. His services were of great assistance.

"In connection with this work, the Curator has through the kindness of Father Reginald Yzendoorn of the Catholic Mission, and others, secured for the use of the Museum a number of manuscript and published accounts of Hawaiian worship and the heiau by writers in the native language. Combined with the Museum's collections, there are now available the native accounts of Malo, S. M. Kamakau, Kamakau of Kaawaloa, Haleole, Kepelino, Pogue, anonymous native writers and others, and all the portions germane to the subject have been translated or retranslated by the Curator, except a few chapters of Malo. In this work assistance has been received from Messrs. T. G. Thrum, W. H. Rice, J. S. Emerson, John Wise and others. The most important section, Malo's chapter on heiau, has been submitted with full notes to Rev. Henry H.

Parker for comment, but not yet returned. As mentioned in the previous Report, an understanding of the heiau subject was obtained from these accounts not possible by other means today.

"Being requested by the Director to report on the remains of the ancient feather sash belonging to the Museum, the same was studied and the pattern worked out. A study of its technique, however, required a minute examination of other specimens of feather work which is proceeding and will, it is hoped, result in a paper on the technique of Hawaiian feather work.

"Traveling Exhibit.—Five of the padded compartment cases to hold the casts for this exhibit have been prepared by the carpenter. However, all of the specimens selected have not been cast, as Mr. Thompson must give his first attention to the perishable fish and fruit as they are found.

"Mould in Cases.—This was brought up in my report for 1915 and suggestions made for a remedy. However, an experiment of continually burning electric lights in the cases was tried and while the mould was reduced, it was not eliminated. At the beginning of this year the lights were turned off for a month, and the mould returned more abundantly than ever. It would now be well to take up the matter of damp-proofing the cases.

"Work Outside the Department.—*The Hawaiian Rat.* Living specimens of the supposedly extinct native rat were sent to Dr. Witmer Stone of Philadelphia in 1915 for description. His manuscript was not received until the last week of 1916, and was published in 1917, with additional notes by the Curator.[1]

"This year specimens of the Fanning Island rat were received from Mr. W. H. C. Greig, and appear distinct from the Hawaiian species. Dr. Stone was asked if he would care to examine them for description if necessary, but since he has not replied, it may be presumed that he will be unable to do so. In one of his letters he expressed the fear that his increasing office and editorial work would compel him to abandon his systematic work.

"Legislation.—While studying the haunts of the native rat the attention of the Curator was drawn to the wanton destruction by human beings of the native bird life on the coastal islands of

[1] *Occasional Papers*, Vol. III, No. 4.

Oahu. Owing to the lack of a curator of ornithology in the museum, or an active member of the Audubon Society in the Territory, the Curator felt impelled to interest local people in the protection of birds and other land forms of native life in places where government protection had not been afforded. The Legislature of this year passed a law authorizing the Board of Agriculture and Forestry to draw up regulations to control the unfortunate situation, and the Board has the matter well in hand. The Curator has further cooperated with Chief Forester C. S. Judd in placing warning signs on some of the islands."

**Botany.**—Owing to the unfortunate illness of the Curator, no full account can be given of what has been a very busy year in this department. The Curator spent some months on Lanai, Kauai, and Maui and collected many plants, how many must appear in a subsequent report. Exchanges have also been numerous and important. He was engaged in poisoning his late accessions at the time he was seized with his illness, and attributed it, in part at least, to this disagreeable work. No doubt when his report appears it will show a decided increase in not only the number of specimens, but in the value of the herbarium as a whole.

The most important addition to the herbarium during the year was due to the fortunate discovery by Rev. J. M. Lydgate, of Lihue, Kauai, in his former home at Laupahoehoe, Hawaii, of an almost forgotten collection of Hawaiian plants collected or named by Dr. Hillebrand numbering some four hundred and fifty specimens. This was examined by the Curator and found in excellent condition and the Trustees at once purchased it. It is fortunate that so much of Dr. Hillebrand's collection should be here in Hawaii; the rest of the material he used in writing his *Flora of the Hawaiian Islands* is elsewhere.

**Ornithology.**—As the Museum has had no curator of ornithology, it has fallen to the lot of the Director to remove the entire stored collection from the strawboard boxes in which they were

carefully packed to the steel trays in the steel cases provided for their safe storage. This has been done with care and the collection was found generally in good order. Labels designating family, genus and species were printed and placed upon cases and trays, and the specimens were arranged in the cases, systematically in regard to the Hawaiian portion, and the balance of the collection geographically. This work has taken part of the last two years, and I have been assisted by Messrs. H. Leon Ebersole, Woods Peters, in their vacation time, and by my Secretary Richard Ernest Lambert, until the catalogue is complete, so far as there is room in the cases, and each species can readily be found. Before undertaking the task, I did not imagine that the Museum presented so many species not only indigenous to these islands, but also from the other groups of the Pacific and the coast of California, and Australia and the East Indies. They are in such excellent cases, that with occasional airing the specimens should last many years, even if the Museum has no regular curator of ornithology.

**Pulmonata.**— The Curator of Pulmonata, Dr. C. Montague Cooke, reports:

"In the year 1917 your Curator can report that more work has been accomplished than in any previous year. Practically all the material that has come in during the year has been catalogued except the specimens collected on Molokai during the early part of December. In addition numerous odd lots of shells were catalogued, some of which had been acquired by collection or gift as far back as 1913. There still remain six different collections waiting to be catalogued (estimated between 50,000 and 75,000), made up for the most part of the genus *Achatinella*. As these shells ought to be numbered individually, your Curator does not feel like undertaking the work at present as the amount of time necessary to do this can be more advantageously employed.

"Collection.—The type and cotype material belonging to the genus *Auriculella* has been catalogued and arranged in the collection. Also the entire collection of this genus, made before 1905, was entered into the catalogue. This contained more than 14,000

specimens distributed over 490 catalogue numbers. During the year 62,661 new specimens were catalogued and added to the collection. Of these 21,492 were acquired by gift, 9602 in return for preparing and naming specimens of other collectors, 5455 by collection of other members of the staff, 25,499 by collection of the Curator, and 613 types, cotypes and paratypes of *Auriculella*. These 62,661 specimens were distributed over 3467 catalogue numbers. Altogether (including *Auriculella*) 76,689 specimens were catalogued during the year, which exceeds the largest year's addition (1914) by nearly eight thousand specimens.

"The George Munro collection of the genus *Partulina* from Lanai was purchased during the year. This collection though not large is a valuable one to the Museum as the exact locality and date of collection is placed with each lot of shells and the collection is accompanied by a map showing each of the localities.

"Field Work.—No extended collecting trip was undertaken during the year, single day trips being the rule. The shells which were collected by the Curator and catalogued represent forty-two days of field work, not all of which were taken during the year, as, as stated above one or two of the lots were collected as far back as 1913. The bulk of catalogued specimens was collected during the latter part of 1916 and 1917.

Publication.—A short paper dealing with some new species and varieties of the genus *Amastra* appeared during the early part of the year.

Gifts.—Your Curator wishes to thank the following persons for their gifts catalogued during the past year: Dr. H. A. Pilsbry, Messrs. A. F. and J. Gouveia, I. Spalding, P. H. Timberlake, R. Mist, D. Thaanum, F. P. Pierce, B. C. Oliveira, J. S. Emerson, D. Fleming, G. P. Cooke, C. N. Forbes and J. C. Bridwell; Parker Ranch; Mrs. G. W. Bryan; Miss Carolene Cooke; Masters Girdler, Desnouée, Lorimer and C. M. Cooke III."

Dr. Cooke's list of *Leptachatina*, *Pauahia*, *Auriculella*, *Gulickia*, *Elasmias*, *Tornatellina*, *Tornatellides* and *Tornatellaria* will be found later in this report. It will not only show the richness of the Museum collection but be of no little use in arranging exchanges.

**Modeling.**—Mr. J. W. Thompson, our Artist and Modeler, has been fully occupied during the year. He reports as cast and painted twenty-six ethnological specimens, some for the traveling collection, others of loans, among the latter remarkable copies of wooden idols; also sixteen casts of fish, five of fruit, two of mollusks, two of *Hippocampus*, a total of fifty-one finished models. In addition to these, fifteen unfinished casts. He has also prepared two bird skins and two crabs. Among the fish was one born without a tail, apparently a new species of Chætodontidæ. The collection of fish casts in this Museum now far surpasses any similar collection and surely deserves a handbook, but before this can be written the many species in the collection unnamed and undescribed should be studied by an expert, and the Museum has no curator of marine zoology.

**Entomology.**—Quoting from the report of the Honorary Curator Mr. Otto H. Swezey, where he speaks of the Helms collection: "This large collection will furnish an inexhaustible source of entomological work in the future, as a great deal of it consists of unnamed specimens, and it will always be of great value for reference by the entomologists of Honolulu, as well as of interest to the casual visitor, as it contains so many beautiful and queer forms, as well as many of immense size and peculiar structures."

While the orders Orthoptera, Hemiptera, Diptera, Lepidoptera, Hymenoptera and Neuroptera were transferred from the old boxes in which they came to the Museum to the new cabinet drawers without any special study, of the Coleoptera the large families Cicindelidæ, Carabidæ, Scarabæidæ, Buprestidæ, Tenebrionidæ, Cerambycidæ and Chrysomelidæ were specially studied to determine their proper arrangement in the cabinets. There yet remain to be transferred part of the Chrysomelidæ, the Curculionidæ and several minor families, and the New Zealand Coleoptera.

In referring to the work on the Hawaiian collections Mr. Swezey continues: "The Coleoptera, Neuroptera, Diptera and part

of the Lepidoptera, Hymenoptera and Orthoptera have been transfered to the new cabinets from the drawers in Hawaiian Hall where they have been for the past several years. They are thus put in a more convenient location for reference and study by any of the local entomologists.

"During the year Mr. Bridwell has added to the collection of Hawaiian insects the following specimens collected by him in the mountains and other parts of Oahu: Hymenoptera, 570 specimens; Diptera, 158; Coleoptera, 975; Orthoptera, 44; Hemiptera, 933; Neuroptera, 17; Odonata, 10; Lepidoptera, 543. A total of 3250 specimens which is more than one-fifth the number of the specimens already in the collection of Hawaiian insects. This new material has not been worked up, but it is readily seen that there are many species among them not hitherto in the collection, and there are also some new species among them." It should be noted that hitherto the Museum has had but sixty-four per cent of the number of species listed in the *Fauna Hawaiiensis*. This is an indication of the importance of having a working curator under Mr. Swezey in this department. The number of insects if not of species certainly seems to be increasing on these Islands.

**Exhibitions.**—Quoting from the report of Mrs. Helen M. Helvie, Superintendent of Exhibition Halls, in regard to the relation of the Museum to the public: "The attendance has kept up very well in spite of the changes in steamer schedules, and the withdrawal of many of the passenger boats between Honolulu and the Coast. More local people have visited the Museum, and soldiers from the neighboring forts frequently spend an hour or two of their spare time in going through the Museum, and enjoying the exhibits. The attendance of school children has been steadily increasing. This year we have had forty-five classes with 1290 pupils from different schools, public and private; and very genuine interest in the specimens is always shown." I might add to the report my own impressions of some of our soldier visitors, whom I have

accidentally met in the galleries and have conversed with. In explaining or directing their attention to particular objects I have found a much greater interest and intelligence than in the average visitor. I have seldom conducted a party of these young men from case to case without feeling myself refreshed instead of wearied: if all the American soldiers could prove as bright, clean, vigorous and receptive as those I have met by chance in the Museum halls, there would be a bright augury for the triumph of the American troops.

TABLE OF ATTENDANCE.

| 1917 | Whites. | Hawaiians. | Portuguese. | Chinese. | Japanese. | Others. | Days open. | Average. | Totals. |
|---|---|---|---|---|---|---|---|---|---|
| January | 1116 | 228 | 89 | 99 | 169 | 18 | 22 | 78.2 | 1,719 |
| February | 1523 | 199 | 122 | 193 | 288 | 27 | 21 | 112. | 2,352 |
| March | 1394 | 61 | 51 | 53 | 203 | 31 | 23 | 78. | 1,793 |
| April | 643 | 71 | 12 | 63 | 115 | 36 | 21 | 44.9 | 940 |
| May | 391 | 94 | 27 | 120 | 240 | 38 | 22 | 41.4 | 910 |
| June | 528 | 148 | 68 | 86 | 344 | 66 | 22 | 57. | 1,240 |
| July | 688 | 95 | 60 | 75 | 207 | 6 | 22 | 51.5 | 1,131 |
| August | 693 | 79 | 48 | 77 | 226 | 28 | 22 | 52.4 | 1,151 |
| September | 519 | 141 | 41 | 179 | 313 | 30 | 21 | 58.3 | 1,223 |
| October | 475 | 175 | 43 | 73 | 171 | 30 | 22 | 48.6 | 967 |
| November | 690 | 221 | 89 | 71 | 179 | 19 | 21 | 60.3 | 1,269 |
| December | 567 | 98 | 63 | 53 | 144 | 27 | 21 | 45.4 | 952 |
| Totals | 9227 | 1610 | 713 | 1142 | 2599 | 366 | 260 | 60.3 | 15,657 |

Among the more distinguished visitors in 1917 we may record George Shiras III; Frederick J. Koster, Chamber of Commerce, San Francisco; Dr. A. H. Sayce, Oxford; President Reinhardt, Mills College; Drs. Alfred G. Mayer and Lewis R. Cary, Carnegie Institution; Carl Lumholtz, Christiania, Norway; S. H. Ball, Mining Engineer, New York; Dr. L. P. de Bussy, Director Handelsmuseum van het kolonial Institut, Amsterdam; Hon. E. Mitchelson,

Trustee of the Auckland Museum; Professor and Mrs. T. C. Trueblood, University of Michigan; Professor Herbert E. Gregory, Head of Geological Department, Yale University.

In comparing the total attendance of four successive years we find—

| | | | |
|---|---|---|---|
| 1914 ..... | 15,573 | 1916 ..... | 15,529 |
| 1915 ..... | 15,985 | 1917 ..... | 15,657 |

It is rather surprising to see for the past year the native Hawaiians are represented by only 713 while Chinese count 1142 and Japanese, the major part of the population of the Territory, register only 2599. The Chinese have always been among the most interested of our visitors, and yet they are the only people excluded from free access to *free* America!

**Museum Press.**—The greater part of the year the printer has been busy with the Fornander papers which are being prepared for the press under the able editorship of the veteran publisher and antiquarian, Mr. Thomas G. Thrum. Last year the first part was issued and this year the first volume has been completed and would have been issued except for some delay on the index of nearly fifty quarto pages. This has passed the press and will be distributed early in 1918. As the remainder of the Fornander papers will fill two of the average volumes of the Museum *Memoirs*, and the printing of these will occupy much time, the first part of Volume VII of the *Memoirs* has been largely put in type and will soon be issued. The *Annual Report of the Director for 1916* has also been issued during the year. As during the latter part of the year our printer has been without assistance, and during the temporary absence of Mr. Thrum has had difficult work with the Hawaiian version of the Fornander papers, especially in proofreading, a difficulty the Director shared with him, he deserved commendation. It might be wise in selecting an assistant to fill the existing vacancy to consider an educated Hawaiian printer, if one can be found.

After no little delay and by the efficient system of "trackers" a large consignment of printing paper of the quality used in our publications traveled from Maine and was finally shipped to us.

**Library.**—From the report of Miss Elizabeth Higgins, Librarian, I quote the following:

"In some ways the year just closed has been the most satisfactory in the history of the Library, though a change of assistants early in the spring interfered rather seriously with the progress of our work. However, two weeks after Miss Steinbring left we were fortunate in securing the services of Miss Lucile Lucas, whose experience in a San Francisco office enabled her quickly to learn the routine of our office and library work. In addition to her regular duties, Miss Lucas prepared a shelf list for a large part of the library and made a number of copies of manuscripts and special articles required by the Director and members of the staff. Carbon copies of these articles were covered in heavy paper, labeled, and placed in the Library as separates. I regret that the offer of a considerably higher salary has caused our capable assistant to return to the Coast, thus making the training of another the first work of the new year.

"Accessions.—The accessions from exchanges continue to decrease, the number of volumes from that source completed this year being only seventy as compared with one hundred and ninety-six in 1913. On the other hand gifts, especially of local publications, have been large and the purchases include a number of rare volumes and parts that were much needed. Among the more important purchases may be mentioned the following:

The *Auk*, 1900-1917, completing the series from 1884.
Philadelphia Academy of Sciences, 26 early publications.
Lacordaire et Chapuis, *Genera des Coleoptères*. Paris, 1854-1876.
Photostatic copy of Ingraham's *Voyage of the Hope*, 1790-1792. (Original manuscript in the Library of Congress.)
Hooker and Arnott, *Botany of the Blossom*. London, 1831-1833. (Parts I–IV only. Hawaiian section complete.)

"The gifts of the year include a large quantity of newspapers and periodicals in the Hawaiian language, representing twenty-six different publications, dating from 1849. For these thanks are due

especially to the Hawaiian Historical Society, the Territorial Government through Mr. Lydecker, and the Catholic Mission through the Rev. Father Yzendoorn. From the Historical Society we received also a large quantity of books, pamphlets and parts in English, including eight volumes and thirty-three parts of the *Missionary Herald*, 1846-1867, needed in completing our file. Letters from Father Coan, and other missionaries, giving descriptions of manners and customs in Hawaii and numerous observations on the volcano of Kilauea, make this series a valuable one for the Museum.

"Early in the autumn a systematic effort was made to discover how many early Hawaiian newspapers and periodicals were still in existence in the homes of the people. With this object in view, more than a hundred letters were written to ministers, district magistrates, circuit court judges, legislative representatives and others on the different islands. We are indebted to the Rev. Henry P. Judd for assistance in regard to names and addresses. Many answers were received but only two of them could be considered favorable. One man wrote that he had kept files of several publications, giving the list; the other replied that he had a few Hawaiian papers which he did not care to sell. The result of this canvass shows that practically no files of Hawaiian publications are now in existence outside of institutions and the large libraries of collectors, and that what we have been able to collect is an important acquisition.

"Binding and Exchanges.– One hundred and ninety-three books have been bound and the list of exchanges has been increased by four.

"Indexing. The indexing of the more important Pacific voyages is now fairly under way, four drawers of a card cabinet being now filled with the index to Cook's last voyage (London, 1784. 3 vols.) The ethnological subject headings are based largely on those used in *Notes and Queries on Anthropology*—published for the British Association for the Advancement of Science—and Frazer's *Questions on the Customs, Beliefs and Languages of Savages.* Although considerable work in the way of combining and revising must yet be done before it is in any sense complete, the index is now ready for use and in fact is now being used. Next will come an index of the same voyage by William Ellis, surgeon on the

"Resolution" (London, 1783, 2 vols. 8vo.). A steel card cabinet is now needed for the indexes to the voyages.

"The listing of duplicates and the classification of our lists of 'wants' have been begun. When the work is complete copies will be sent to all the institutions on our exchange list. This method, we hope, may unearth some important items that we have not been able to obtain from book dealers.

"Requests come to us from time to time for information in regard to lists of books on Hawaii. One of the librarians in the Library of Hawaii recently brought up the question of an Hawaiian bibliography saying how urgently a good one was needed. By way of suggestion, I may give my opinion that a good bibliography could be prepared at the Museum by collecting the lists on special subjects already prepared by the curators of departments and by getting some help from outside specialists. General works should, I think, be limited to those of original observers, or else the list should be annotated. Such a work could not well be undertaken by the Museum at present, but the need of it is unquestioned."

The Librarian is right in her opinion that this work could not be undertaken at present when the Museum has but three active curators of botany, ethnology and pulmonata. This Museum has no curator of ornithology to speak for the bird life and history; no curator of marine zoology to speak of the fishes and their vast and much studied life, of the corals, that some day may prove an index to the age and formation of not only islands but continents within the limits of coral growth, indeed of the life of the ocean almost as extensive as the life of the land, and some day to take his place as head of the marine zoological station that Mr. Bishop gives a prominent place in his Deed of Trust, and for which the Legislature of the Republic of Hawaii granted a location, and the Director of this Museum made plans that were approved by Alexander Agassiz and Dr. Dohrn of Naples; no curator of geology to call attention to all that has been written on the volcanic manifestations on this Group; no taxidermist to care for the large collection now in the Museum of bird skins, nests and eggs; now without going farther,

if the Librarian cares to enter this field as it now stands, while I do not doubt her ability to accomplish the task, the labor will be very great. If after the war the new Director should be able to fill some of the vacant curatorships, the labor will be much lightened, and that there is need of such a bibliography is well known to every one who is interested in museum work or who cares to look into Hawaiian matters. If the bibliography could be made to include Hawaiian matters of natural history as well as descriptive ethnology contained in many volumes of *Transactions* in the Museum Library it would indeed be an acquisition.

# List of Accessions.

## ETHNOLOGICAL.

*By Gift.*

Mrs. W. R. Castle, Honolulu. (B 1351)
Pipe. Hawaiian Islands.

Mrs. C. M. Cooke, Honolulu. (B 1375-1377)
Three netted bags (koko). Hawaiian Islands.

C. M. Cooke III, Honolulu. (B 1385)
One leho lu hee. Oahu.

The Greig Brothers, Fanning Island. (B 1333)
Canoe body. Washington Island.

A. F. Judd, Honolulu. (B 1378, 1379)
Gourd scraper, of shell; scraper or knife, of stone. Oahu.

James Munro, Molokai. (B 1387-1401)
Hatchet form of adze, 3 adzes in the rough, 2 stone hammers, 2 sinkers, canoe breaker, gourd stopper of shell, 2 pieces of coral files, pieces of filed bone. Molokai.

Mr. Olsen, Honolulu. (B 1335-1338)
Pipe, coconut cup, 2 pieces of tapa. Oahu.

Pacific Sugar Mill, by J. W. Waldron. (B 1341, 1342)
Two idols. Hawaii.

F. M. Ritchie, Honolulu. (B 1402)
Mortar. Oahu.

J. W. Thompson, Honolulu. (B 1339, 1340)
Adze, poi pounder. Oahu.

Rev. W. D. Westervelt, Honolulu. (B 1350)
"Tuna" blanket. Honduras.

Mrs. Palmerston White, Honolulu. (B 1386)
Coconut and kukui-nut goblet. Hawaiian Islands.

G. P Wilder, Honolulu. (B 1349)
Skull. Oahu.

Rev. Fr. Yzendoorn, Honolulu. (B 1334)
Cast of written tablet. Easter Island.

*By Collection.*

C. M. Cooke, Jr., Honolulu. (1403-1407)
Two polishing stones, 2 hammers, drill point. Molokai.

*By Purchase.*

Poi pounder, pestle, 2 awa cups, 2 tapa beaters. Hawaii. (B 1343-1348)

Club, 6 tapa beaters, 5 olona scrapers, 4 adzes, 2 pestles, poi pounder, knife, 2 ulumaika, 5 lehu lu hee. Maui. (B 1352-1374)

Five ulumaika. Oahu. (B 1380-1384)

*By Loan.*

A. L. C. Atkinson, Honolulu. (L 1077-1276)
Twenty-seven pohaku lu hee, 3 sinkers, bath rubber, 10 polishing stones, 5 hammers, 3 grindstones, 4 stone balls, 18 ulumaika, 3 pestles, 12 poi pounders, 19 lamps, stone dish, 3 stone cups, 10 adzes, chisel, 6 sling-stones, canoe sewing clamp, 50 tapa beaters, 2 laau melomelo, 2 ukeke, 2 adze handles, 2 laau lomilomi, spear, drum, kahili, 2 olona scrapers, shell trumpet, leho lu hee, samples of tapa. Hawaiian Islands.—Stone idol, part. Necker Island.—Spear. Samoa.—Four pearl fish-hooks. Micronesia.

Bruce Cartwright, Jr., Honolulu. (L 1060, 1062-1069)
Scraper or flenser of bone. Kauai—Pohaku lu hee, 2 leho lu hee, 3 ulumaika, artefact, adze. Oahu.

Mrs. G. P. Cooke, Molokai. (L 1283)
Perforated cone shell. Molokai.

G. P. Cooke, Molokai. (L 1284-1296)
Walking stick, ulumaika, 6 leho lu hee, 2 pohaku lu hee, engraved stone, adze, artefact. Molokai.

D. T. Fleming, Maui. (L 1074)
Fish god. Molokai.

A. F. Judd, Honolulu. (L 1061)
Cast of face of King Kalakaua.

E. A. Knudsen, Kauai. (L 1297, 1298)
Two wooden idols. Kauai.

Mrs. Emily K. Mehrten, Oakland. (L 1073, 1075, 1076)
Tapa, mat. Hawaiian Islands.—Club. Fiji.

G. C. Munro, Lanai. (L 1070-1072)
Large file of coral, shell adze, niho palaoa of shell. Lanai.

Mrs. James Munro, Molokai. (L 1277)
Handle of pestle with a face carved. Molokai.

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## ADDITIONS TO THE LIBRARY.

[Received by exchange unless otherwise indicated.]

ADELAIDE, SOUTH AUSTRALIA.

Royal Geographical Society of Australasia (South Australian Branch).—Proceedings, xvii.

Royal Society of South Australia.—Transactions and Proceedings, xl. Also xvi, purchased.

AUCKLAND, NEW ZEALAND.

Auckland Institute.—Annual Report, 1916-1917.

AVALON, SANTA CATALINA.

The Islander, 5 numbers, 1917. Gift.

BALTIMORE, MARYLAND.

Johns Hopkins University.—University Circular, 1916, nos. 8-10; 1917, nos. 1-8.

BARCELONA, SPAIN.

Junta de Ciencies Naturals.—Series Zoologica, i-iii, v-vii, xi.—Series Botanica, i, ii.—Series Biologico Oceanografica, i.

Real Academia de Ciencias y Artes.—Boletin, iv, 1.—Memorias, xiii, 4-18.—Nomena del Personal Academico, 1916-1917.

BERKELEY, CALIFORNIA.

Scripps Institution for Biological Research of University of California, nos. 1-4.

University of California.—Publications: American Archæology and Ethnology, xii, 6-11; xiii, 1. Also ii, title, index.—Botany, v, 11; vi, 13, 14; vii, 3, 4.—Chronicle, xviii, title, index; xix, 1-3.—Pathology, six miscellaneous pamphlets (reprints).—Zoology, title-page and index to vol. xii; xiii, 13, title, index; xv, 2, 3; xvi, 18-24; xvii, 7-10; xviii, 1, 3, 4.

BERN, SWITZERLAND.

Bern Historisches Museum.—Jahresbericht, 1916.

Boston, Massachusetts.

American Academy of Arts and Sciences.—Proceedings, li, 14, title, index; lii, 7-13, title, index; liii, 1, 2.—Memoirs, vi, 2, purchased.

Boston Museum of Fine Arts.—Bulletins, 86-91. Also, 4, 19, 26, 27, 43; title to vol. vii.

Boston Public Library.—Annual Report, 1916-1917.—Bulletin, ix, 4; x, 1-3.

Boston Society of Natural History.—Proceedings, xxxv, 4. Also xxiv, purchased.

Massachusetts Horticultural Society.—Transactions, 1916, part ii; 1917, part i. Given by Dr. W. T. Brigham.

Missionary Herald, 1846, 1856, 1857, 1859, 1861, 1862, 1867, 1868, and thirty-three parts to complete volumes. Given by the Hawaiian Historical Society.

Nautilus, current numbers.

Boulder, Colorado.

University of Colorado.—Studies, x, 3; xi, 2, 3. Given by the Hawaiian Historical Society.

Brisbane, Queensland.

Queensland Museum.—Memoirs, iv, v.

Royal Society of Queensland.—Proceedings, xxiv, xxviii.

Bristol, England.

Bristol Museum,—Annual Report, 1916.—Guide, 1916. Given by the Museum.

Brooklyn, New York.

Brooklyn Entomological Society. Explanation of terms used in Entomology.

Museum of the Brooklyn Institute of Arts and Sciences.—Annual Report, 1916.—Brooklyn Museum Quarterly, iii, index; iv, 1-3.

Buitenzorg, Java.

Jardin Botanique.—Bulletin, xxiii, xxiv, xxv.—Gedenkscrift ter gelegenheid van het Honderdjarig Bestaan op May 18, 1917.

Cambridge, Massachusetts.

American Ornithologists' Union.—The Auk, xvii-xxxiv.—Index to vols. 1901-1910.—One check-list. Purchased.

Harvard University Library.—Annual Report, 1916.

Massachusetts Institute of Technology. Second Report of the Hawaiian Volcano Observatory. Given by the Institute.

Museum of Comparative Zoology.—Annual Report, 1915-1916. —Bulletins, lv, 5; lxi, 1-13.—Memoirs, xxx, 4; xliii, 1; xlvi, 2.

Peabody Museum.—Annual Report, 1915-1916.—Papers, vii.

CAPETOWN, SOUTH AFRICA.

South African Museum.—Annals, ix, 5; xii, 4; xiii, 5, 6; xv, 4-6; xvii, 1.—Annual Report, 1916.

CHARLESTON, SOUTH CAROLINA.

American Association of Museums.—Proceedings, 1917, purchased.

CHICAGO, ILLINOIS.

Field Museum.—Anthropological Series, vi, 4; xv, 2.—Report Series, v, 2.—Zoological Series, x, 15; xii, 1.

CHRISTCHURCH, NEW ZEALAND.

Canterbury Museum,—Annual Report, 1916.

CINCINNATI, OHIO.

Lloyd Library.—Bibliographical Contributions, ii, 12; iii, 1, 3.

CLAREMONT, CALIFORNIA.

Pomona Journal of Entomology, i, 1. Given by the Pomona College.

COLOMBO, CEYLON.

Colombo Museum.—Spolia Zeylanica, x, 38.

COLUMBUS, OHIO.

Ohio State University.—Biological Survey Bulletin, xxi, 9, 11.—Ohio Journal of Science, xvii, 2-8.

DETROIT, MICHIGAN.

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British Ecological Society.—Journal of Ecology, current numbers. Purchased.

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SUMMARY OF LIBRARY ACCESSIONS FOR 1917.

| | | |
|---|---|---|
| Volumes received by exchange | 70 | |
| Volumes received by purchase | 132 | |
| Volumes received by gift | 70 | 272 |
| Parts and pamphlets received by exchange | 545 | |
| Parts and pamphlets received by purchase | 52 | |
| Parts and pamphlets received by gift | 2317 | 2914 |
| Total | | 3186 |

# Leptachatinæ and Tornatellinidæ in the B. P. Bishop Museum.

By C. Montague Cooke Jr.

In presenting the following catalogue of Leptachatinæ and Tornatellinidæ in the Museum collection, the list is made to include all the species, subspecies and varieties recognized in Volumes XXI and XXIII of the Manual of Conchology. All the forms listed are present in the Museum collection except those lacking a statement of the authority of identification. The author intends that this list may be considered a preliminary catalogue showing merely what species are at present in our collection.

It may seem advisable at some future date to publish catalogues of genera or groups of species based on the collections now in the Museum. A very few species in our collection were not dealt with at the time the manuscripts were prepared for the Manual of Conchology (due to insufficient material), and numerous new forms are continually being added. The scope of these catalogues will be to show as far as possible our knowledge of the distribution and variation of each of the species dealt with.

A summary tabulation follows the list. We are fortunate to have represented in our collections such a large percentage of what may be considered type material.

## LEPTACHATINÆ.

### LEPTACHATINA.

*Species from Kauai.*

Leptachatina acuminata (Gld.).
Specimens identified from description.

Leptachatina cuneata C.
Holotype and paratypes.

Leptachatina antiqua Pse.
Specimens identified from description.

Leptachatina lævis Pse.
Specimens compared with types.

Leptachatina knudseni C.
Holotype and paratypes.

Leptachatina cylindrata Pse.
Specimens compared with paratypes.

Leptachatina brevicula Pse.
Specimens identified from description.

Leptachatina brevicula var. micra C.
Holotype and paratypes.

Leptachatina pachystoma (Pse.).
Specimens compared with types.

Leptachatina pachystoma var. turgidula (Pse.).
Specimens compared with types.

Leptachatina pachystoma var. cylindrella C.
Holotype and paratypes.

Leptachatina pachystoma var. brevis C.
Holotype and paratypes.

Leptachatina lucida Pse.
Specimens identfied from description.

Leptachatina striata (Newc.).

Leptachatina attenuata C.
Holotype and paratypes.

Leptachatina balteata Pse.
Specimens compared with types.

Leptachatina costulosa Pse.
Specimens identified from description.

Leptachatina extensa Pse.
Specimens identified from description.

Leptachatina gayi C.
Holotype.

Leptachatina leucochila (Gul.).
Paratype.

Leptachatina pupoidea C.
Holotype and paratypes.

Leptachatina striatula (Gld.).
Specimens compared with types.

Leptachatina tenebrosa (Pse.).
Specimens compared with types.

Leptachatina (Angulidens) fossilis C.
Specimens identified by author.

Leptachatina (Thaanumia) perforata C.
Holotype and paratypes.

Leptachatina (Ilikala) fraterna C.
Holotype and paratypes.

*Species from Oahu.*

Leptachatina sandwichensis (Pfr.).
Specimens compared with types.

Leptachatina stiria (Gul.).
Specimens compared with types.

Leptachatina illimis C.
Holotype and paratypes.

Leptachatina scutilus (Migh.).
Specimens identified from description.

Leptachatina popouwelensis P. & C.
Specimens identified from description.

Leptachatina cerealis (Gld.).
Specimens identified from description.

Leptachatina obtusa ("Newc." Pfr.).

Leptachatina teres (Pfr.).
Specimens identified from description.

Leptachatina turrita (Gul.).

Leptachatina persubtilis C.
Holotype and paratypes.

Leptachatina gracilis (Pfr.).
Specimens compared with types.

Leptachatina subula (Gul.).
Specimens identified from description.

Leptachatina terebralis (Gul.).

Leptachatina convexiuscla Skyes.
Paratype.

Leptachatina exilis (Gul.).
Paratype.

Leptachatina saxatilis (Gul.).

Leptachatina exoptabilis C.
Holotype and paratypes.

Leptachatina leiahiensis C.
Holotype and paratypes.

Leptachatina accincta (Migh.).
Specimens identified from description.

Leptachatina crystallina (Gul.).
Paratypes.

Leptachatina gummea (Gul.).
Paratypes.

Leptachatina triticea (Gul.).

Leptachatina oryza (Pfr.).
Specimens identified from description.

Leptachatina oryza hesperia P. & C.
Paratypes.

Leptachatina vana Sykes.
Paratype.

Leptachatina capitosa C.
Holotype and paratypes.

Leptachatina pulchra C.
Holotype and paratypes.

Leptachatina opipara C.
Holotype and paratypes.

Leptachatina opipara manana P. & C.
Paratypes.

Leptachatina fumida (Gul.).
Paratype.

Leptachatina glutinosa (Pfr.).
Specimens compared with types.

Leptachatina dimidiata (Pfr.).
Specimens compared with types.

Leptachatina pyramis (Pfr.).
Specimens compared with types.

Leptachatina approximans Anc.
Specimens identified by author.

Leptachatina cingula (Migh.).
Specimens identified from description.

Leptachatina ventulus (Fer.).
Specimens identified from description.

Leptachatina pilsbryi C.
Holotype and paratypes.

Leptachatina corneola (Pfr.).
Specimens identified from description.

Leptachatina marginata (Gul.).

Leptachatina resinula (Gul.).
Paratypes. [288]

Leptachatina succincta (Newc.).
Specimens identified from description.

Leptachatina saccula (Hart.).

Leptachatina costulata (Gul.).
Paratype.

Leptachatina octogyrata (Gul.).
Paratype.

Leptachatina sculpta (Pfr.).
Specimens compared with types.

Leptachatina (Labiella) labiata (Newc.).
Specimens compared with types.

Leptachatina (Labiella) callosa (Pfr.).

Leptachatina (Labiella) lagena (Gul.).
Paratypes.

Leptachatina (Angulidens) cookei Pils.
Cotype and paratypes.

Leptachatina (Angulidens) microdon P. & C.
Paratype.

Leptachatina (Angulidens) subcylindracea C.
Specimens identified by author.

Leptachatina (Thaanumia) omphalodes (Anc.).
Holotype and paratype.

Leptachatina (Thaanumia) optabilis C.
Holotype and paratypes.

Leptachatina (Thaanumia) fuscula (Gul.).
Specimens compared with types.

Leptachatina (Ilikala) fusca (Newc.).
Specimens compared with types.

Leptachatina (Ilikala) fusca var. striatella (Gul.).
Paratypes.

Leptachatina (Ilikala) nemàtoglypta P. & C.
Paratypes.

Leptachatina (Ilikala) petila (Gul.).
Specimens compared with types.

*Species from Molokai.*

Leptachatina lævigata C.
Holotype and paratypes.

Leptachatina sagittata P. & C.
Topotypes. [289]

Leptachatina molokaiensis C.
Holotype and paratypes.

Leptachatina emerita Sykes.
Paratype.

Leptachatina concolor C.
Holotype and paratypes.

Leptachatina conicoides Sykes.
Specimens compared with types.

Leptachatina oryza var. avus P. & C.
Paratypes.

Leptachatina varia C.
Holotype and paratypes.

Leptachatina dormitor P. & C.
Paratypes.

Leptachatina somniator P. & C.
Paratypes.

Leptachatina coruscans Hart.
Specimens identified from description.

Leptachatina coruscans dissimilis C.
Holotype and paratypes.

Leptachatina lanceolata C.
Holotype and paratypes.

Leptachatina (Thaanumia) morbida C.
Holotype and paratypes.

Leptachatina (Thanumia) thaanumi C.
Holotype and paratypes.

*Species from Lanai.*

Leptachatina subovata C.
Holotype and paratypes.

Leptachatina smithi Sykes.
Paratype.

Leptachatina semipicta Sykes.
Paratypes.

Leptachatina perkinsi Sykes.
Paratypes.

Leptachatina longiuscula C.
Holotype. [290]

Leptachatina impressa Sykes.
Specimens compared with types.

Leptachatina supracostata Sykes.
Specimens compared with types.

Leptachatina lanaiensis C.
Holotype and paratypes.

*Species from Maui.*

Leptachatina fulgida C.
Holotype and paratypes.

Leptachatina baldwini C.
Holotype and paratypes.

Leptachatina obsoleta (Pfr.).
Specimens compared with types.

Leptachatina ovata C.
Holotype and paratypes.

Leptachatina mcgregori P. & C.
Cotype.

Leptachatina grana (Newc.).
Specimens compared with paratypes.

Leptachatina vitreola (Gul.).
Specimens compared with types.

Leptachatina vitreola var. parvula (Gul.).

Leptachatina guttula (Gld.).
Specimens compared with types.

Leptachatina nitida (Newc.).
Specimens compared with types.

Leptachatina nitida occidentalis C.
Holotype and paratypes.

Leptachatina præstabalis C.
Holotype and paratypes.

Leptachatina compacta Pse.
Specimens identified from description.

Leptachatina isthmica Anc.
Cotypes.

Leptachatina kuhnsi C.
Holotye and paratypes.

Leptachatina conspicienda C.
Holotype and paratypes.

Leptachatina (Labiella) lenta C.
Holotype and paratypes.

Leptachatina (Angulidens) hyperodon P. & C.
Specimens identified from description.

Leptachatina (Thaanumia) dulcis C.
Holotype and paratypes.

*Species from Hawaii.*

Leptachatina arborea Sykes.
Paratypes.

Leptachatina simplex Pse.
Specimens compared with types.

Leptachatina defuncta C.
Holotype and paratypes.

Leptachatina lepida C.
Holotype and paratypes.

Leptachatina konaensis Sykes.
Paratypes.

Leptachatina konaensis var. olaaensis C.
Holotype and paratypes.

Leptachatina tenuicostata Pse.
Specimens identified from description.

Leptachatina imitatrix Sykes.
Specimens identified from description.

Leptachatina (Angulidens) anceyana C.
Holotype and paratypes.

Leptachatina (Thaanumia) henshawi Sykes.
Paratypes.

## PAUAHIA.

*Species from Oahu.*

Pauahia semicostata (Pfr.).

Pauahia artata C.
Holotype and paratypes.

Pauahia tantilla C.
Holotype and paratypes.

Pauahia chrysallis (Pfr.).
Specimens compared with types.

## TORNATELLINIDÆ.

### AURICULELLA.

*Species from Oahu.*

Auriculella diaphana Sm.
Paratypes.

Auriculella diaphana cacuminis P. & C.
Paratypes.

Auriculella straminea C.
Holotype and paratypes.

Auriculella auricula (Fer.).
Specimens identified from description.

Auriculella amœna (Pfr.).

Auriculella olivacea C.
Holotype and paratypes.

Auriculella montana C.
Holotype and paratypes.

Auriculella pulchra Pse.
Paratypes.

Auriculella ambusta Pse.
Specimens compared with types.

Auriculella ambusta obliqua Anc.
Holotype and paratypes.

Auriculella malleata Anc.
Holotype and paratypes.

Auriculella minuta C. & P.
Holotype and paratypes.

Auriculella perversa C.
Holotype and paratypes.

Auriculella perpusilla Sm.
Specimens compared with type.

Auriculella turritella C.
Holotype and paratypes.

Auriculella serrula C.
Holotype and paratypes.

Auriculella castanea (Pfr.).
Specimens compared with types.

Auriculella petitiana (Pfr.).

Auriculella tantalus P. & C.
Topotypes.

Auriculella chamissoi (Pfr.).

Auriculella tenuis Sm.
Paratype.

Auriculella tenella Anc.
Holotype and paratypes.

Auriculella kuesteri (Pfr.).

*Specimens from Molokai.*

Auriculella newcombi (Pfr.).
Specimens identified from description.

Auriculella flavida C.
Holotype and paratypes.

Auriculella cerea (Pfr.).
Specimens compared with types.

Auriculella brunnea Sm.
Specimens compared with types.

Auriculella canalifera Anc.
Holotype and paratypes.

*Species from Lanai.*

Auriculella lanaiensis C.

*Species from Maui.*

Auriculella uniplicata Pse.
Specimens compared with types.

Auriculella crassula Sm.
Specimens compared with types.

Auriculella expansa Pse.
Specimens compared with types.

*Species from Hawaii.*

Auriculella westerlundiana Anc.
Holotype and paratypes.

## GULICKIA.

Gulickia alexandri C. & P.
Holotype and paratypes.

## ELASMIAS.

Elasmias fuscum (Anc.).
Holotype and paratypes.

Elasmias fuscum obtusum P. & C.
Topotypes.

Elasmias luakahaense C. & P.
Holotype and paratypes.

Elasmias anceyanum C. & P.
Holotype and paratypes.

## TORNATELLINA.

Tornatellina baldwini Anc.
Holotype and paratypes.

Tornatellina baldwini subrugosa P. & C.

Tornatellina mcgregori P. & C.
Paratypes.

Tornatellina cylindrica Sykes.
Paratypes.

Tornatellina cylindrica kilohanana P. & C.
Paratypes.

Tornatellina polygnampta P. & C.
Paratypes.

Tornatellina polygnampta kamaloensis P. & C.
Speimens identified from description.

Tornatellina peponum (Gld.).
Specimens compared with types.

Tornatellina lanceolata C. & P.
Holotype and paratypes.

Tornatellina gracilis Pse.
Specimens compared with types.

Tornatellina oblonga Pse.
Specimens compared with types.

Tornatellina gayi C. & P.
Holotype and paratypes.

Tornatellina tantalus P. & C.
Topotypes.

## TORNATELLIDES.

*(Group of T. simplex.)*

Tornatellides compactus (Sykes).
Paratypes.

Tornatellides procerulus (Anc.).
Cotypes.

Tornatellides procerulus puukolekolensis P. & C.
Cotype and paratypes.

Tornatellides procerulus kailuanus P. & C.
Cotype and paratypes.

Tornatellides kamaloensis P. & C.
Paratypes.

Tornatellides kilauea P. & C.
Paratype.

Tornatellides kahukuensis P. & C.
Paratypes.

Tornatellides confusus (Sykes).
Specimens identified from figure.

Tornatellides bryani C. & P.
Holotype and paratypes.

Tornatellides kahoolavensis C. & P.
Holotype and paratypes.

Tornatellides konaensis C. & P.
Holotype and paratypes.

Tornatellides subangulatus (Anc.).
Holotype and paratypes.

Tornatellides oncospira C. & P.
Holotype and paratypes.

Tornatellides inornatus P. & C.
Paratypes.

*(Group of T. thaanumi.)*

Tornatellides thaanumi C. & P.
Holotype and paratypes.

Tornatellides idæ C. & P.
Holotype and paratypes.

Tornatellides idæ anisoplax P. & C.
Paratypes.

Tornatellides diptyx P. & C.
Paratypes. [296]

(*Group of T. cyphostyla.*)

Tornatellides cyphostyla (Anc.).
Holotype and paratypes.

Tornatellides attenuatus C. & P.
Holotype and paratypes.

Tornatellides insignis P. & C.
Paratypes.

Tornatellides pilsbryi C.
Holotype and paratypes.

Tornatellides oahuensis C. & P.
Holotype and paratypes.

Tornatellides moomomiensis P. & C.
Paratypes.

(*Group of T. perkinsi.*)

Tornatellides perkinsi (Sykes).
Specimens compared with types.

Tornatellides perkinsi var. acicula C. & P.
Holotype and paratypes.

Tornatellides comes P. & C.
Paratype.

Tornatellides frit P. & C.
Paratypes.

Tornatellides productus (Anc.).
Holotype and paratypes.

Tornatellides macromphala (Anc.).
Holotype and paratypes.

Tornatellides macromphala ada P. & C.
Specimens identified from description.

Tornatellides micromphala P. & C.
Paratypes.

Tornatellides spaldingi C. & P.
Holotype and paratypes.

(*Group of T. euryomphala.*)

Tornatellides euryomphala (Anc.).
Holotype and paratypes.

Tornatellides irregularis C. & P.
Holotype and paratypes.

Tornatellides ronaldi C. & P.
Holotype and paratypes.

Tornatellides popouelensis P. & C.
Paratypes.

Tornatellides pyramidatus (Anc.).
Holotype.

Tornatellides waianaensis P. & C.
Paratypes.

Tornatellides brunneus C. & P.
Holotype and paratypes.

Tornatellides macroptychia (Anc.).
Holotype and paratypes.

Tornatellides virgula C. & P.
Holotype and paratypes.

Tornatellides bellus C. & P.
Holotype and paratypes.

Tornatellides plagioptyx P. & C.
Paratypes.

Tornatellides leptospira C. & P.
Holotype and paratypes.

(*Group of T. terebra.*)

Tornatellides terebra (Anc.).
Holotype and paratypes.

Tornatellides prionoptychia C. & P.
Holotype and paratypes.

Tornatellides forbesi C. & P.
Holotype and paratypes.

Tornatellides forbesi var. nanus C. & P.
Holotype and paratypes.

Tornatellides drepanophora C. & P.
Holotype and paratypes.

Tornatellides serrarius P. & C.
Specimens identified from description.

(*Subgenus Waimea.*)

Tornatellides (Waimea) rudicostata (Anc.).
Holotype. [298]

## TORNATELLARIA.

Tornatellaria lilæ C. & P.
Holotype and paratypes.

Tornatellaria adelinæ P. & C.
Paratype.

Tornatellaria occidentalis P. & C.
Paratypes.

Tornatellaria newcombi (Pfr.).
Specimen compared with types.

Tornatellaria stokesi P. & C.
Specimen identified from description.

Tornatellaria umbilicata (Anc.).
Holotype and paratypes.

Tornatellaria trochoides (Sykes).
Paratypes.

Tornatellaria cincta (Anc.).
Paratypes.

Tornatellaria anceyana C. & P.
Holotype and paratypes.

Tornatellaria henshawi (Anc.).
Holotype and paratypes.

Tornatellaria sykesi C. & P.
Holotype and paratypes.

Tornatellaria sykesi illibata C. & P.
Holotype and paratypes.

Tornatellaria convexior P. & C.
Specimens identified from description.

Tornatellaria abbreviata (Anc.).
Paratypes.

Tornatellaria abbreviata hawaiiensis C. & P.
Holotype and paratypes.

Tornatellaria smithi C. & P.
Holotype and paratypes.

Tornatellaria sharpi P. & C.
Topotype identified from description.

Tornatellaria baldwiniana C. & P.
Holotype and paratypes.

## SUMMARY.

| Genus. | Island. | Number of named forms. | Number of named forms represented in collection by type material. | Number of named forms not represented in collection. |
|---|---|---|---|---|
| LEPTACHATINA. | Kauai. | 26 | 11 | 1 |
| | Oahu. | 58 | 25 | 8 |
| | Molokai. | 15 | 13 | |
| | Lanai. | 8 | 6 | |
| | Maui. | 19 | 10 | 1 |
| | Hawaii. | 10 | 7 | |
| PAUAHIA. | | 4 | 2 | 1 |
| AURICULELLA. | Oahu. | 23 | 15 | 4 |
| | Molokai. | 5 | 2 | |
| | Lanai. | 1 | 1 | |
| | Maui. | 3 | | |
| | Hawaii. | 1 | 1 | |
| GULICKIA. | | 1 | 1 | |
| ELASMIAS. | | 4 | 4 | |
| TORNATELLINA. | | 13 | 8 | 1 |
| TORNATELLIDES. | | 52 | 48 | |
| TORNATELLARIA. | | 18 | 14 | |
| TOTALS. | | 261 | 168 | 16 |

# The Genus Lagenophora in the Hawaiian Islands, with Descriptions of New Species.

Charles N. Forbes.

October, 1918.

The first Hawaiian representative of this small genus of the Compositæ was discovered by Horace Mann on the summit of West Maui where it is still a common plant. It also occurs on Eke, a small isolated crater to the west of the summit peak Puu Kukui,[1] but has not been reported from elsewhere. Two undescribed species, noted below, occur in bogs on Kauai, while perhaps these or others may eventually be found in bogs on Molokai, East Maui and Hawaii. The habitats of the Hawaiian species are the open bogs of the humid rain-forests at elevations of 4,000 to 6,000 feet. The rainfall in these localities varies from 200 to 600 inches per annum with some rain or fog practically every day in the year.

While on Eke I noticed two forms of *L. maviensis* Mann which at first sight seemed to be distinct varieties, but further study in field and herbarium shows them to be simply variations of a single species. The species and forms may be described as follows:

### Artificial Key to Hawaiian Species.

Flower heads large, over 1 cm. in diameter.
- Ray florets entire ..... *L. maviensis.*
- Ray florets emarginate ..... *L. maviensis* forma *emarginata.*

Flower heads small, under 1 cm. in diameter.
- Leaves glabrous ..... *L. Erici.*
- Leaves hirsute ..... *L. Helena.*

[1] In conversation with Rev. J. M. Lydgate I learn that the Eeka locality of Dr. Hillebrand is the point now generally known as Puu Kukui, and so recorded on the official maps. This fact is of considerable importance to the student of Hawaiian botany because the two localities have similar though slightly different floras. Eeka is given by Hillebrand as the type locality for some of his species, while in reality Puu Kukui is the place where the plants were collected. It is practically impossible to reach Eke from Puu Kukui; and I very much doubt if Hillebrand ever visited the locality. There may be some question as to whether Eke and Eeka are the same place.

## Lagenophora maviensis Mann.

H. Mann in Proc. Am. Acad. Arts and Sci., Vol. II, p. 172 (1867).
*L. maviensis* Hbd. in Flora H. I., p. 195 (1888).

Mann's type represents the robust form as compared with other Hawaiian forms and species.

Type locality, top of the mountain of West Maui. Mann & Brigham, No. 440.

Minutely viscous-pubescent herb with a thick creeping rhizome. Leaves radical or crowded on a short stem, coriaceous, sessile, cuneate to spatulate-oblanceolate, acute or rounded at the apex which is coarsely serrate, entire toward the base, covered with resinous glands and a short, evanescent, pubescence above, pale and glabrous below, 4.8 cm. long, 6 mm. wide ("About 2 inches long, 4–6 lines wide," Mann). Scape 18–23 cm. long, distantly foliose with 3–9 linear-spatulate bracts. Heads globose, large for the genus, 1.5 cm. in diameter. Involucral bracts linear-oblong, acute, membranous, pubescent, equaling the disk. Ray florets entire, pointed, in 3–4 series, slightly longer than the yellow disk florets, reddish purple. Achenes narrow-lanceolate, the beak glandular-hispid.

Specimens in B. P. B. M. Herbarium. Type, Mann & Brigham, No. 440. Top of mountain of W. Maui, 6,500 feet; Dr. Hillebrand and J. M. Lydgate, Eeka (Puu Kukui, W. Maui); C. N. Forbes, No. 55, M., Puu Kukui, W. Maui, May 1910; Forbes, No. 378, M., Eke, W. Maui, October 1917; G. C. Munro, No. 622, open bog, Puu Kukui, W. Maui, September 1916.

1. LAGENOPHORA MAVIENSIS MANN.

(Reduced 2¾ times.)

**Lagenophora maviensis** forma **emarginata** f. nov.

This form is generally a smaller plant with shorter scapes of 3–8 cm. in length. The flowers are often darker colored, and the rays are emarginate, usually conspicuously so. The common occurrence of small plants with entire rays, and the rare occurrence of large plants with emarginate rays prevent the separation of varieties. Forma *emarginata* looks very distinct when growing.

Specimens in B. P. B. M. Herbarium. Type, C. N. Forbes, No. 379, M. Eke, W. Maui (one specimen on this sheet is the small form with entire rays); Forbes, No. 378, M. Eke, W. Maui. (With typical specimens.)

2. LAGENOPHORA MAVIENSIS FORMA EMARGINATA FORBES.
(Reduced 2¾ times.)

## **Lagenophora Erici** sp. nov.

Herba glabra vel minutim viscoso-pubescens; foliis cuneatis vel spathulato-oblanceolatis, coriaceis, sessilibus, glabris, ad apicem serratis, 1.1–1.6 cm. longis, 3–4 mm. latis; scapo 6–7.4 cm. longo; capitulo parvo, 8 mm. crasso; involucro-bracteis oblongo-cuneatis, acutis, viscoso-pubescentibus; ligulis disco equalis; acheniis obovoido-oblongis.

Type locality, Alakai swamp, Waimea drainage basin, west side, Kauai. C. N. Forbes, No. 882, K. July 3 to August 18, 1917. Collected while in the company of Hon. Eric A. Knudsen and others.

Glabrous or slightly viscous herb with slender creeping rhizome. Leaves very small, radical or crowded on a short stem, coriaceous, sessile, cuneate to spatulate-oblanceolate, rounded at the coarsely serrate apex with one or two minute teeth below, glabrous, pale below, 1.1–1.6 cm. long, 3–4 mm. wide. Scape 6–7.4 cm. long, distantly foliose with 1–2 minute leaf-like bracts. Heads small, 8 mm. in diameter. Involucral bracts oblong-cuneate, acute, membranous, glandular-pubescent, equaling the disk. Ray florets entire, pointed, as long as the disk florets, purplish. Achenes obovoid-oblong.

This species differs from other Hawaiian species in its small, glabrous leaves, and in the small flower heads. It remains to be seen whether robust forms of this species do not occur in the Alakai swamp country.

3. LAGENOPHORA ERICI FORBES.

(Reduced 2¾ times.)

**Lagenophora Helena** Forbes & Lydgate, sp. nov.

Herba hirsuta; foliis obovatis vel spathulatis, coriaceis, hirsutis, ad apicem minutim serratis, 1.6–1.7 cm. longis, 6–7 mm. latis; scapo 7 cm. longo, hirto; capitulo 9 mm. crasso; involucro-bracteis oblongis, acutis, hirsutis; ligulis disco equalis. Achenia ignota.

Type locality, swamp near Kaholuamano, Kauai. J. M. Lydgate (1915?).

Small, hirsute herb with slender, creeping rhizome. Leaves very small, radical, coriaceous, obovate to spatulate, contracting at the base into a very short-margined petiole, rounded and finely serrate at the apex, hirsute on both faces, 1.6–1.7 cm. long, 6–7 mm. wide. Scape 7 cm. long, hirsute, foliose near the head with linear-spatulate bracts. Heads globose, 9 mm. in diameter. Involucral bracts oblong, acute, equaling the disk. Achenes not seen.

This species is evidently very rare as only a single specimen was collected, but is, however, so distinct as to warrant description. The species can be recognized at once by the hirsute pubescence, and shape of the leaves. It is hoped to obtain further material in the future for a more minute examination of ray flowers and achenes.

4. LAGENOPHORA HELENA FORBES & LYDGATE.
(Natural size.)

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